WEST DEALER ISSUE
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Nitrogen Limiting Output Factor in Irrigated Cotton

Right Ratio of Moisture, Fertility Needed, Tests Show

WASHINGTON—A proper combination of fertility and moisture is essential for most efficient yields of irrigated cotton, the U.S. Department of Agriculture reports.

When soil fertility is low, growers can't get much of an increase in cotton yields from extra irrigation. But if fertility is increased—especially by adequate nitrogen applications—increased irrigation will produce substantial boosts in yield, roughly proportional to the amount of water applied.

These findings are reported by Howard R. Haise of Fort Collins, Col., technical staff specialist on irrigation for USDA's Agricultural Research Service. Tests in several areas where irrigated cotton is grown have demonstrated the importance of properly combining fertility and irrigation.

In experiments near Yuma, Ariz., three levels of irrigation were used—a wet treatment in which the field was irrigated 41 times; a medium treatment, using 21 irrigations, and a "dry" treatment, with only 12 irri-

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New Chipman Plant On Shakedown Basis

PORTLAND, ORE. — Chipman Chemical Co. workers in the firm's new $1,000,000 plant here for the production of 2,4-D acids are now operating on a shakedown basis. Equipment being tested as unit by unit is placed upon production status.

The new plant is the first of its kind in the west and newest among the U.S. producers of basic 2,4-D acids and esters for hormone weed killers.

ACS Told That Fertilizers Can Boost Farm Income More Than 100% of Parity

By GEORGE W. POTTS
Croplife Editorial Staff

ATLANTIC CITY—Current chemical research and findings relative to fertilizers, insecticides, pesticides, fungicides and herbicides were outlined as part of the program of the 130th national meeting of the American Chemical Society held here Sept. 16-21. Total registration was expected to exceed the 10,000 mark.

The role of fertilizers in the farm economy and its importance in the required population needs in the years ahead were indicated in a symposium on chemicals in food production featuring prominent industry representatives.

Discussing "The Role of Nitrogen in Our Nation's Future," C. Y. Thomas, Spencer Chemical Co., Kansas City, Mo., noted the phenomenal growth of nitrogen production since World War II and pointed to techniques and processes ensuring relatively low cost nitrogen products far into the future.

He visualized a population of 204 million by 1970 with food consumption 135% above the 1949 figure and increased standards of living for all. He saw in this picture the need for "a bountiful supply of nitrogen as an absolute necessity," and declared that "we in the nitrogen industry are very sure of our ground in predicting adequate supplies at reasonable prices for years and years to come."

Population trend and elevated standards of living were also stressed by J. Fielding Reed, American Potash Institute, Atlanta Ga., who reviewed the established need of potash in maintaining plant and animal life, and saw "every reason why its consumption should increase."

"In the U.S., especially, the use of adequate potash is a must in an efficient farming program," he stated. "Our domestic industry has kept pace with present and future demands and is in an excellent position to supply all of the country's needs even though consumption should increase very appreciably," he concluded.

The role of fertilizer in solving our current farm problems was the basis of an address by Dr. Russell Coleman, National Plant Food Institute, Washington, D.C. He noted that recent research indicated that liberal applications of plant food can restore productivity of soils previously considered unproductive. He stressed the close relationship between plant food consumption and the net farm income, noting that by using more fertilizer per acre the farmer's cost per production unit could be reduced. Touching on the current surplus problem, he counseled the industry that economic values resulting from proper plant food use offer an effective tool and a sound basis for continually pro-

(Continued on page 5)

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Technical Papers on Pesticides Heard At American Chemical Society Meeting

ATLANTIC CITY, N.J.—A considerable amount of attention to problems relating to pesticides was given at the American Chemical Society meeting here Sept. 16-21. The Pesticides subdivision of the division of agricultural and food chemistry brought forth a number of technical papers covering the action of various toxicants used in agriculture, and described laboratory procedures in determining residues.

Joseph A. Noone, technical adviser of the National Agricultural Chemicals Assn., Washington, D.C. was chairman of a session Sept. 17, in which research results were reported.

A series of studies on the fate of DDT in rats was discussed in the presentation of four papers by researchers from the Communicable Disease Center, Public Health Service, Department of Health, Education, and Welfare, Savannah, Ga. The first of these papers, describing the fate of DDT metabolites stored in the fat, was prepared by A. M. Mattson, Cipriano Cueto and J. A. Jensen.

They reported that positive evidence for the presence of DDT and a degradation product, DDE, is obtained through use of ultraviolet and infrared absorption spectra. DDT labeled with carbon-14 has been used to show that no loss of DDT-derived material is incurred in passage through a Davidow column, they said. "This precludes the presence of measurable amounts of dichlorobenzophenone, DDA, or other acidic degradation products of DDT, which are removed by this treatment," the paper said.

Another paper which reported on DDT and DDT-derived materials in the feces of rats, was prepared by Messrs. Cueto, Jensen, W. E. Dale, and G. W. Pearce. They indicated that it has long been known that a portion of ingested DDT is stored in the fat as DDT and DDE, in no case has the total dosage applied been accounted for by analysis of essentially all body tissues, fluids, excreta, etc.

"Up to about 50% of the total dosage has been recovered in the writers' laboratory, using the Schech-

(Continued on page 20)

Healthy Future for Fertilizer Industry in Northeast States Seen at New England Meeting

— See Photos on Page 21 —

By LAWRENCE A. LONG
Editor of Croplife

MELVIN VILLAGE, N.H.—A bright future for the fertilizer industry in the New England states was envisioned by speakers at the New England Fertilizer Conference held here Sept. 12. A panel discussion on the future prospects for agriculture in this area was heard during the morning session, while the economic aspects of fertilizer application were covered by speakers on the afternoon program. About a hundred persons from all the New England states and from other areas, were in attendance at the Bald Peak Colony Club, headquarters for the one-day meeting.

Dean H. C. Grinnell of the University of New Hampshire's college of agriculture, Durham, welcomed the group, and W. R. Allstetter, National Plant Food Institute, Washington, D.C., sponsor of the conference, voiced the welcome of the Institute in a brief talk.

The morning panel comprised L. A. Zehner, assistant to the vice president, Federal Reserve Bank, Boston, moderator; Richard D. Aplin, U.S. Department of Agriculture market

(Continued on page 21)

Inside You'll Find

Tests of Aerial Tree Fertilization Started at Rutgers

BEEMERVILLE, N.J.—Aerial application of a complete fertilizer to forest trees has been made at the Rutgers University dairy research farm by the Rutgers forestry department and Nitrogen Division, Allied Chemical & Dye Corp. It is believed to be the first such application ever made. The fertilizer was spread over an 11-acre stand of red pine.

The purpose of the experiment is to improve the growth of the 28-year-old trees that are growing slowly because of low fertility soil, according to John Andresen of the Rutgers forestry department.

Fertilizing of trees to get a greater volume of wood quicker is an entirely new concept in the U.S., although it has been practiced for some time in Europe where there has been a shortage of wood for centuries, Mr. Andresen said.

Recent tests of fertilizing trees

(Continued on page 17)

Marlin G. Geiger Named Executive Vice President of Grace

NEW YORK—The board of directors of W. R. Grace & Co. has elected Marlin G. Geiger an executive vice president in charge of the chemical group composed of the company's seven chemical divisions. He will be succeeded as president of the Davison Chemical Co. division by William E. McGuirk, Jr., formerly executive vice president of the Davison division.

As chemical group executive Mr. Geiger will assume duties now being carried out by Hugh S. Ferguson, executive vice president, who becomes a member of the top echelon management group with corporate-wide responsibilities of which A. S. Rupley and J. C. Griswold, executive vice presidents, are also members.

Dr. Charles E. Waring, formerly vice president in charge of research and development of the Davison division has been named a vice president of Grace Chemical Research and Development Co. division and will also serve as a vice president of the parent company.

Mr. Ferguson has served as executive vice president in charge of the chemical group since December, 1955. Previously he was president of the Dewey and Almy Chemical Co. division. He became associated with Dewey and Almy in 1923 and in his several executive capacities played a major role in that firm's rapid growth.

Joining the Davison Chemical Corp. in 1947 as executive vice president, Mr. Geiger was elected president in 1953. Formerly he was a vice president and a director of Westvaco Chlorine Products Corp.

Prior to his election as executive vice president of the Davison division in July, 1954 Mr. McGuirk was a vice president of W. R. Grace & Co. which he joined in January, 1954. Previously he was with Kuhn, Loeb and Co. from 1945 to 1953. On leave of absence from that firm, August, 1950 to January, 1952, he served as assistant to Thomas D. Murray, U.S. atomic energy commissioner.

Dr. Waring came to Davison in 1945 as technical assistant to the president and was made vice president in charge of research and development in 1947. Prior to joining Davison, he was research chemist with General Motors Corp., Frigidaire division.

Enters Mexican Industry

WILMINGTON, DEL.—Hercules Powder Co. has announced it will enter into the wood naval stores industry in Mexico for the recovery and utilization of pine stumps. Hercules' entry into this business was carried out through the acquisition of stock in Corbu Industrial, S.A., a Mexican corporation, the other stockholders of which are all Mexican citizens. A new plant will be built near Ciudad Hidalgo, Michoacan, and will manufacture 25,000,000 lb. of wood naval stores products a year. Main offices of Corbu will be in Mexico City.

Thomas V. Martin

California Company To Market New Dry Fertilizer

SAN FRANCISCO—A new commercial dry fertilizer will make its debut on the national market about November 1 packaged both for farm use and home lawns and gardens.

It is to be manufactured by the Flexiform Engineering and Mining Company, Inc., of San Francisco and will be composed of 26 natural mineral oxides combined with nitrogen, phosphate and potash in sufficient quantities to pass the California state requirements for commercial fertilizer.

Flexiform Engineering was founded in 1950 by W. F. Handel, president, and William P. Smith, secretary-treasurer. For the first six years of its life the company primarily dealt with mining properties and mineral extraction from the soil. Without changing this function, the company has created a new fertilizer division to manufacture the new product to be sold nationally. A brand name has not been selected. The fertilizer will first be sold in sizes for home use and later a larger package will be developed for farm use.

Thomas V. Martin, vice president, has been named head of the new division. Mr. Martin, who continues his association with the Hurricane Equipment Co., has been a biologist for about 30 years. He was an instructor in the biology department of the University of Washington, Seattle, for two years.

A factory with a capacity of 200 tons a day has been constructed near San Diego, and Cecil Lewinson, a mining engineer of 43 years, has been named plant manager. Headquarters of the firm are at 681 Market St., San Francisco.

Rainfall in Cycles? Not So, Say Scientists

ABILENE, TEXAS — As Texas farmers look hopefully for the return of wet years, scientists refute the belief that rainfall comes in cycles. A study of weather records at 31 West Texas stations shows that there is no definite pattern to the wet and dry years.

Even the average rainfall is an elusive thing, according to a Texas A&M College report. In West Texas farmers can expect from 52 to 69% of the year to be drier than the average. This is caused by the fact that when a wet year comes along it rains enough to offset two or three dry ones.

Prolonged drouths have occurred ever since records were started. Some of these go back as far as 1889. A severe drouth occurred before the present century began, then others came along in 1917, and in the 1930's while the present one started in 1951. It is by far the driest of them all and shows no signs of changing.

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Virginia-Carolina Net Sales, Earnings Show Decline

RICHMOND, VA.—Net sales of Virginia-Carolina Chemical Corp. for the fiscal year ended last June 30 totaled $70,195,211, compared with $77,454,972 in the previous fiscal year, according to the firm's annual report. Net earnings in 1955-56 were $1,379,016 compared with $2,409,063 in the previous year.

About 44% of the reduction in net sales from 1954-55 to 1955-56 was due to the Black Leaf division sales, which were included in part of the 1955 fiscal year prior to the sale of that division, according to the annual report.

Expenditures for capital additions and replacements, including three new fertilizer plants in the Midwest, were approximately $3,173,000. The new fertilizer plants were constructed at Estherville, Iowa, Remington, Ind. and Orrville, Ohio. The Estherville and Remington plants are equipped with granulating units. Other granular plants are under construction at the Fort Wayne, Ind. and Cincinnati

The Carteret, N.J. plant was closed during the year, and the area formerly served by this plant is now being supplied by the Rochester, N.Y. facilities, which were enlarged and improved, and by the Baltimore plant, according to the report.

"Production at the concentrated superphosphate plant at Nichols, Fla. was stepped up during the year and is expected to be at near-capacity during the current year," the report states. "An increased storage area was constructed to enable the company to offer better service to its customers.

"Nation-wide consumption of mixed fertilizer declined during the year, and shipments of V-C fertilizers were down. Thus, earnings of the fertilizer division were substantially lower than in the preceding year.

"Despite this, operating results of the division are expected to improve during the current fiscal year because of a general strengthening in the price structure and a concentrated sales and advertising program designed to overcome the competitive situation."

J. R. Stiffler Named Smith-Douglass Advertising Manager

NORFOLK, VA.—J. H. Culpepper, vice president of the Smith-Douglass Co., has announced the appointment of J. R. Stiffler as Smith-Douglass advertising manager. A native Iowan and graduate of St. Ambrose College, Mr. Stiffler joined Smith-Douglass in 1953 as advertising assistant.

He will be responsible to Smith-Douglass for coordination of advertising and sales promotion of the corporation's divisions, which, in addition to fertilizer, include the Coronet Phosphate Co., Smith-Rowland Co., San Jacinto Chemical Co., and Nutro lawn and garden plant foods. He is president of the Norfolk Advertising Club.

Retail Dealer Meetings Set in Washington

SEATTLE—A series of district meetings of interest to fertilizer dealers has been scheduled by the Washington State Feed Assn.

The agenda will include discussion of plans of new fertilizer plants being built, where the dealer can fit in, things the dealer can do to keep pace with changes and seed merchandising.

The sessions will be held at the 99 Cafe near Bellingham Sept. 25, Clark's Crabapple Cafe at Bellevue Sept. 26. Spokane Hotel in Spokane Oct. 17, Chinook Hotel in Yakima Oct. 18, Lewis & Clark Hotel in Centralia Nov. 14 and Evergreen Hotel in Vancouver Nov. 15. All will start at 6:30 p.m.

R. W. Breidenbach

R. W. Breidenbach to Direct Expanded CSC Program in Midwest

NEW YORK—Commercial Solvents Corp. will launch a major expansion of its agricultural chemicals sales and customer service in the Midwest for the 1956-57 fertilizer season, it has been announced by Clyde T. Marshall, general manager of the agricultural chemicals department.

R. W. Breidenbach has been named Midwest sales manager to direct the expanded effort and will make his headquarters at CSC's district office in St. Louis.

Appointment of A. W. Kinnard III to the agricultural chemicals marketing and distribution organization in the Southeast also was announced by C. J. Watts, Jr., southeastern sales manager for CSC's agricultural chemicals department.

Mr. Breidenbach has been the company's assistant general manager of agricultural chemicals sales in New York City where he directed the development of product distribution for the $20,000,000 expansion of nitrogen fertilizer facilities completed by CSC in 1953. This expansion doubled the company's output of anhydrous ammonia and added nitrogen solutions, solid ammonium nitrate and aqua ammonia to its fertilizer line.

Mr. Breidenbach has been associated with Commercial Solvents since 1948. Prior to joining the company's agricultural chemicals department, he was manager of CSC's San Francisco district office. During World War II, Mr. Breidenbach served as an officer in the navy on duty in the Pacific area.

A. W. Kinnard III

Mr. Kinnard is assigned to the Southeastern sales district, which has headquarters at the company's Atlanta office. He will reside in Tampa, with sales responsibilities covering the state of Florida. He was formerly with the Nitrogen Division of Allied Chemical and Dye Corp. Mr. Kinnard is a native of Shreveport, La. He obtained his education at Mississippi State and Millsaps Colleges.

Personnel Manager

LOS ANGELES—Jerry J. Barry has been appointed to the newly-created position of personnel and office manager at the Los Angeles plant of American Potash & Chemical Corp., according to an announcement by Russell S. Sunderlin, Los Angeles plant manager. Mr. Barry formerly was assistant to Robert B. Coons, vice president, administration, at the company's main office, also located at Los Angeles. In his new capacity, Mr. Barry will be in charge of wage and salary administration, personnel and labor relations, general office management and other duties. He will report to Forrest E. Branch, AP&CC director, administrative services.

Grace Earnings Show Increase First Half of 1956

NEW YORK—W. R. Grace & Co. has reported an 11% increase in net earnings per common share for the first six months of 1956 over the corresponding period for 1955. Total net income amounted to $10,547,545 against $9,426,664 for the first half of 1955.

In its semi-annual report to stockholders, the company said net earnings per share of common stock computed on the average number of shares outstanding, were $2.37 for the first half of 1956 as compared to $2.14 for the similar 1955 period.

Including the company's equity in earnings in excess of dividends received from unconsolidated subsidiaries and fifty per cent owned companies, total earnings per common share for the six-month period amounted to $2.62 for this year against $2.32 in 1955.

Sales and operating revenues during the first half of 1956 were $222,118,000 as compared with $219,398,000 for the corresponding six-month period of 1955.

The increase in net earnings was attributed to the improved earnings of the chemical group, the steamship group and the general business group.

"Within the chemical group the Dewey & Almy division achieved a notable increase in earnings," according to the report. "The Davison division enjoyed a very satisfactory increase in sales and earnings from its industrial chemicals, but both this division and the Grace Chemical Co. division suffered from a general weakness in the demand for agricultural chemicals. The latter division, however, showed a marked increase over previous earnings."

SEEDING DELAY

OKLAHOMA CITY — Continued drouth over the state has delayed preparation of land and the seeding of the 1957 wheat acreage. In some instances where there has been local showers, farmers have been encouraged to plant wheat, and some planters have seeded wheat in the dust. Corn yields are below normal and abandonment is high. Sorghums, also, have been severely damaged by drouth. Pasturage is poor and stock water getting very low.

INSECT, PLANT DISEASE NOTES

Iowans Warned Against Spotted Aphid Presence

AMES, IOWA—The spotted alfalfa aphid—worst insect enemy of alfalfa—has been found in Iowa, according to H. M. Harris, state entomologist and head of the Iowa State College department of zoology and entomology. State and college entomologists discovered the aphid Sept. 13 during regular scouting surveys. It was found from Lyon County in northwest Iowa to Wayne and Lucas counties in the south-central part of the state.

"Infestations aren't expected to reach serious enough proportions this fall to be of economic significance," said Dr. Harris. "Farmers will probably not find control measures necessary this season," he added.

Entomologists will continue scouting Iowa alfalfa fields, however. They will attempt to determine how far east the aphid will penetrate before cold weather.

Iowa's cold winters may prevent overwintering of the aphid. "On the basis of one winter's observation," Dr. Harris said, "winter weather this far north appears to be too severe for the insect." He expressed the hope that infestations may be restricted to summertime invasions.

Numerous Spotted Aphids Found in Colorado Fields

FORT COLLINS, COLO.—Infestations of the spotted alfalfa aphid in north central Colorado vary from extremely heavy to negligible.

The largest count of this pest, according to the weekly report of the Colorado insect detection committee, was at Hudson in south Weld county. For every 100 sweeps, entomologists found an average of 30,000 aphids.

The next highest count, 6,000 per 100 sweeps, was recorded at LaSalle, also in Weld county. Other stations in Weld county reporting mild infestations are at Johnstown, Eaton, Greeley and Milliken, with Ault noting none.

Tests at Longmont showed an appreciable number (150) of spotted alfalfa aphids, and Lyons reported only 20. Both are in Boulder county.

In Larimer county observers caught 20 per 100 sweeps at Berthoud and Hart's Corner, while traps at Fort Collins and Timnath had none.

Reporting on other insects, Dr. L. B. Daniels, committee chairman and chief entomologist for the Colorado A&M Experiment Station, said aphids are causing damage to late potatoes in Weld county. As a result, many fields are maturing early, he said.

Otero county growers are advised to be on the lookout for the southern corn root worm and the striped cucumber beetle, both increasing in light trap samples.

Cutworm moth emergence has been noted in Weld, Otero, Mesa, Montezuma and Prowers counties. So far, infestations are light but there is danger they will become more serious.

Populations of the white-lined sphinx appear to be increasing in Otero county, according to the committee report.

Stored Grain Pests Expected in Maryland

COLLEGE PARK, MD. — Farmers in Maryland are being warned against the invasions of moths and weevils in stored corn and other grains. They are advised to either use up or fumigate remaining stores of grain, and to avoid adding new corn to old.

Cadelle larvae and beetles are abundant at this time of year, the entomologists find. Farmers are strongly urged to either fumigate or move grain to another bin and clean up the vacated area.

Reports of potato tuberworm have been heard in parts of the state. For control, DDT, at the rate of 1 qt. emulsion to 10 gal. water, sprayed on walls and floor, is recommended.—Theodore L. Bissell and W. C. Harding, Jr.

Alfalfa Pest Continues To Spread in Virginia

BLACKSBURG, VA. — The spotted alfalfa aphid, new to Virginia farmers, continues to spread in the state, and a survey is underway to determine how extensive the damage is.

Arthur P. Morris, associate entomologist at Virginia Polytechnic Institute here, has urged farmers, county agents and others to send in any specimens of aphids from alfalfa, in order to assist in the survey.

Other crops are also threatened by insect pests, although soybeans are believed to be safe from large-scale corn earworm outbreaks this year. At the same time, farmers were being warned to watch for any possible outbreaks.

The presence of poisonous spiders, including the black widow, has been noted in Virginia. These insects tend to move into basements with the first indications of cool weather.

New Mexico Growers Alerted Against Aphids

STATE COLLEGE, N.M. — Entomologist John J. Durkin, extension service at New Mexico A&M College, has given alfalfa growers in his state some splendid advice upon being alert to the possible presence of spotted alfalfa aphid. "If you have just planted alfalfa, be on the alert for spotted alfalfa aphid infestations," he writes. "Check your seedling alfalfa every day from the time it germinates until the plants are well established. One spotted alfalfa aphid can kill a seedling plant in a few hours."

"Because of the insect's damage, growers often have to replant two and three times before they get a good stand. Damage to seedling alfalfa was very severe in 1954 and 1955, and many seedling stands will be lost again this year if growers fail to control spotted alfalfa aphids.

"As soon as the alfalfa comes up, make daily checks across your fields. Get down on your hands and knees and examine several plants around you. Look on the undersides of the leaves for aphids and honey dew. Brush a stiff white card over several plants and check the card and the ground for aphids. Make several of these stops diagonally across the field. Look for spots in the field that appear to be stressed for water—there may be aphids there.

"Don't let seedling stands become stressed for water. The combination of aphid attack and lack of water will wipe out a seedling stand of alfalfa over night.

"If you find only a few winged aphids scattered over the field, don't treat then, but continue to examine your stand very closely every day. If you find large numbers of winged and/or wingless aphids and honeydew, treat the field as soon as possible. Infestations of one aphid per plant can cause severe loss of stand.

"Use BHC, parathion, methyl parathion, or malathion to control aphids on seedling alfalfa stands. If the alfalfa is not going to be cut or pastured within 21 days of treatment, BHC is the best material to use because of its long residual action. Apply dusts at the rate of 20 to 25 lb. an acre. Mix sprays by adding one of these emulsifiable concentrates to enough water to cover one acre. BHC (11.7%) 2 to 3 pints; methyl parathion (25%) 1 to 1½ pints; parathion (25%) 1 to 1½ pints; malathion (57%) 1½ to 2 pints.

"Don't use BHC on alfalfa hay crops within 21 days of cutting. Thorough application is essential for good control. Any skips in the field are sources of reinfestation. Treat ditch banks, fence rows and roadsides too."

Harvard Scientists Making Progress in Finding Insect Vectors of Encephalitis

BOSTON — Massachusetts department of public health bacteriologists working at the Harvard medical school are attempting to pin the blame for the latest outbreak of encephalitis on a particular species of mosquito. Large quantities of these insects have been caught in light traps in the Hockomock swamp area where the disease got underway.

Entomologists have already identified 15 different species of mosquito. It was at Harvard medical school that it was first discovered that the disease could be transmitted by Aedes aegypti mosquitoes. Later, Harvard doctors discovered that a number of other species of mosquito could also transmit the virus.

Even as the work progressed, two new cases of suspected encephalitis in humans were reported Sept. 17 from Lawrence and Weymouth, Mass. Lawrence health officials said the operator of a snack bar in Andover had been stricken at his Lawrence home. The 34-year-old man is the first victim in that area. In Weymouth, a 7-year-old girl was the fourth person to be stricken in that town during the current outbreak of equine encephalitis or "horse sleeping sickness."

At the Harvard medical school, the captured mosquitoes are quick frozen at a temperature of 65° below zero. They are then pulverized in an abrasive which breaks down tissues and releases the virus when and if it is present.

The virus is so minute that scientists can examine it only with an electronic microscope. The only sure way to determine its presence is by injecting it into mice or chick embryo. Thus far attempts to detect virus in the mosquito have been negative.

Weather is working against the entomologists. With colder nights, fewer mosquitoes are yielded by the traps. The first killing frosts will probably reduce the captive insects to practically nothing and the experiments along these lines will have to wait until next year.

Mrs. Joan Daniels, state bacteriologist, says that encephalitis is particularly deadly to horses and it is now believed that the most of the equine victims are horses which are left out in their pasture all night without protection against mosquito stings. Horses that are housed in barns in the summer months have escaped the virus.

Prior to discovery of the virus in 1930 when horses in southern California were hard hit, many cases were blamed on botulism, the effect of certain bacteria on fodder, or forage poisoning. But in 1933, when the epidemic broke out on the eastern seacoast, research revealed that the disease was different from the western type and was much more severe in character.

Research this summer has isolated one strain of the virus from a human brain at the State virus laboratory at Harvard medical school and two were isolated at Children's Hospital in Boston. Virus was also isolated from three horses and a sparrow.

Three other cases were confirmed on humans who recovered. The virus can be neutralized by mixing it with serum from recovered animals, it was reported. This prevents the death of mice inoculated with the mixture and proves the identity of the virus. Wild birds are the principal "reservoirs" of infection in the U.S. Encephalitis is primarily a disease of birds. Large numbers of these wild birds seek refuge in swamps in the summer months and are bitten by mosquitoes.

At first, the entomologists said, it was believed to have only a mild effect on birds, but now it is known that it can be fatal to certain species. Dead sparrows, cardinals and red winged blackbirds are found in fairly large numbers in the infected areas.

This year, following the outbreak in August, the state of Massachusetts sprayed by plane all swampy land where infection could occur. Surveys made in former years in the Hockomock swamp area lying in Taunton, Raynham, Norton, Easton and Bridgewater indicated that one out of five birds shot and tested for blood samples showed evidence of having been infected.

ACS MEETING

(Continued from page 1)

noting its products, regardless of the nation's farm problems.

Using a thought provoking title of "Phosphatic Fertilizers, 1956, How Far—Where To?" Edwin Cox, Virginia-Carolina Chemical Corp., Richmond, Va., saw the phosphatic fertilizer industry undergoing rapid change and being at a "crossroads." He noted that there are new phosphatic fertilizer materials. Monocalcium phosphate no longer is completely predominant. Modifications in phosphate mining practices are occurring. "Throughout the industry there are the questions not only 'how far? — but where to?,'" he stated.

M. F. Fogler, Allied Chemical & Dye Corp., presided at the session.

This symposium resumed later in the day under the chairmanship of Carlton A. Sears, American Cyanamid Co., New York, offering papers by J. T. Thurston, American Cyanamid Co., on "Planning Research and Development for the Successful Commercialization of Pesticides"; J. Steele Brown, Allied Chemical & Dye Corp., discussing "Manufacturing for the Pesticide Industry"; Fred W. Hatch, Shell Chemical Co., covering "End Use Patterns Present and Projected for Pesticides," and Ernest Hart, Food Machinery & Chemical Corp., outlining "Problems Related to the Successful Marketing of Pesticides."

Another session under the direction of the division of fertilizer and soil chemistry featured papers on "Rapid Determination of Magnesium in Mixed Fertilizer," "The Interrelation of Fertilizer Salts and the Soil and Plant Phenomena of Exchange Reactions," "Effect of Nitrogen Sources in Complete Fertilizers on Bluegrass Turf," "Agricultural Value of Organic Wastes," "Fertilizer From Leached-Zone Ore," "Stability of Certain Insecticides in Mixtures With Fertilizers," and "Anti-Caking of Commercal Pelletized Fertilizers and Various Fertilizer Components With Fatty Chemicals."

The session continued with "Phosphoric Acid by the Davison Clinker Process," "Influence of Adsorbed Surface Active Agents on the Physical and Chemical Properties of Solid Constituents of Phosphate Ore," "Production of Ordinary Superphosphate for Immediate Use in Ammoniation and Granulation Processes," "The Control of Air Pollution From Fertilizer Plants," "Production of Diammonium Phosphate by Continuous Vacuum Crystallization," "Storage Properties of Diammonium Phosphate Made From Electric-Furnace Acid," and "Granulation of Mixed Fertilizers in Experimental Equipment."

The session concluded with papers covering "Manufacture of Granulated Triple Superphosphate," "Use of Ammoniating Solutions Containing Urea in TVA Granulation Process," "The Team Approach to Fertilizer Economics Research," "Factors Governing Use of Trace Elements With Various Fertilizer Formulations," "Davison's Trenton Process for Ammoniating and Granulating Fertilizers," "Utilization of Calcium Metaphosphate in the Production of Granular Fertilizers," "Distribution of Granular Mixed Fertilizers to Retail Trade in 1954-55," and "Urea—Form, Sales and Acceptance."

Chemical Sales Clinic Scheduled in New York

NEW YORK — The fifth annual Chemical Sales Clinic, sponsored by the Salesmen's Association of the American Chemical Industry, Inc., will be held Oct. 15 at the Hotel Commodore, New York. Featured speaker at the meeting will be Carter L. Burgess, assistant secretary of defense. He will address the luncheon on the topic "Defense Needs Technicians, Too."

Panel discussions will be on "Supervision of Salesmen Without Interference," "Value of Communication Between Sales and Management" and "How the Chemical Salesman Can Improve the Re-Seller-Manufacturer Relationship."

CONTEST DEADLINE

PORTLAND, ORE. — Clancy Jean, Portland Chamber of Commerce agricultural committee manager, reminds that Oct. 15 is the deadline for Oregon "Grassman of the Year" contest entries.

Experiment Station Transferred to USDA

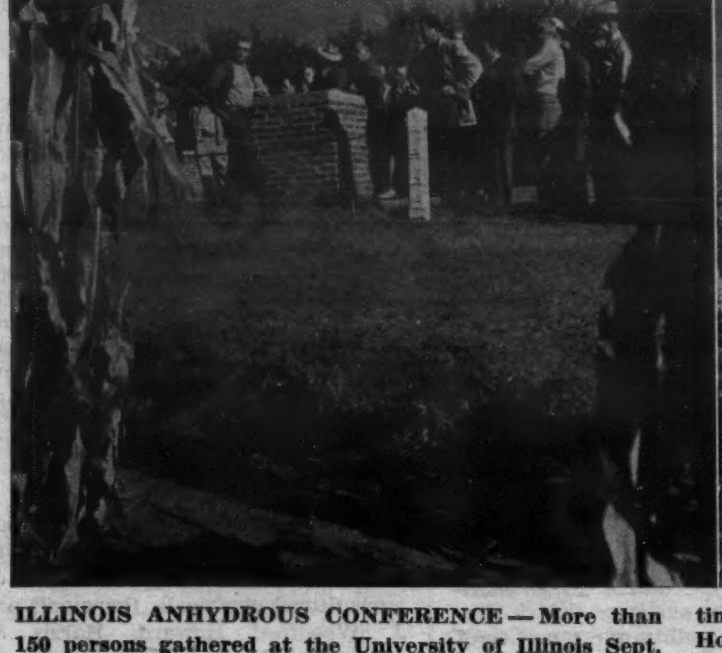
WASHINGTON — Supervision of federal research activities at the Squaw Butte-Harney Experiment Station near Burns, Ore. has been transferred (effective July 1) from the Department of Interior's Bureau of Land Management to the Agricultural Research Service of the U.S. Department of Agriculture.

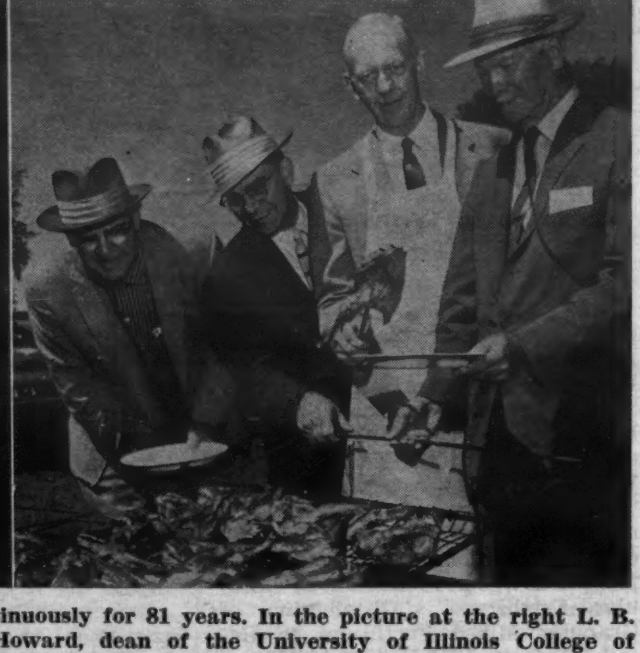
Research at this station, conducted cooperatively by USDA and the Oregon Agricultural Experiment Station, is designed to aid the range cattle industry of the Pacific Northwest. The research program includes: (1) improvement of beef cattle through breeding, management, and nutrition; (2) increasing the quantity and quality of range forage through reseeding, brush and weed control, range management, and range use; and (3) improvement of quality and quantity of hay produced for range livestock on wild flood meadows through use of fertilizer and good management practices.

Previous research at the station has resulted in extensive seeding of sagebrush-bunchgrass-type range land, after killing the sage with chemical sprays. On less depleted rangelands, native grasses can often regain high productivity if the competing sagebrush is killed. Station studies have led also to use of commercial fertilizer (both phosphorus and nitrogen) for improving the yield and quality of flood-meadow hay, and to the use of protein supplements to improve livestock nutrition, both during the winter and when cattle are on summer range.

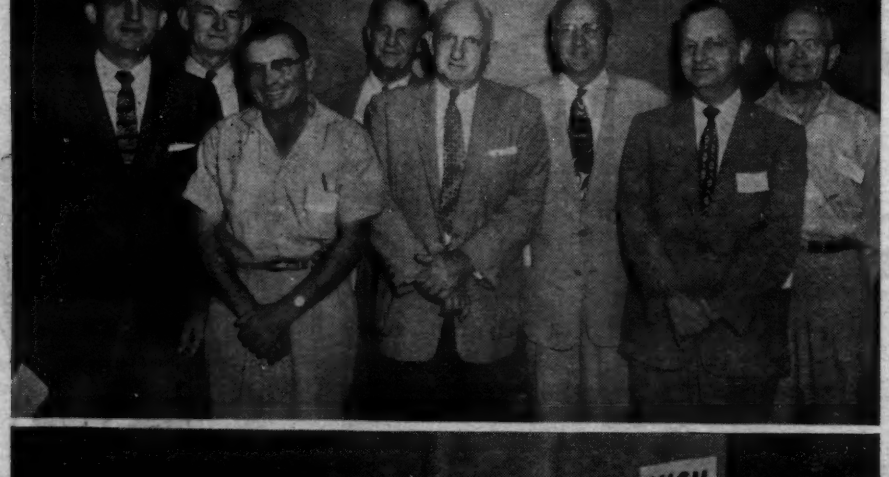
Kentucky Firm

PARIS, KY. — Kentucky Distributors, Inc. has been formed here to deal in the manufacture and sale of agricultural chemicals. Principals are J. Woodford Howard, Harris S. Howard and Mrs. T. R. Ranier of Prestonburg.





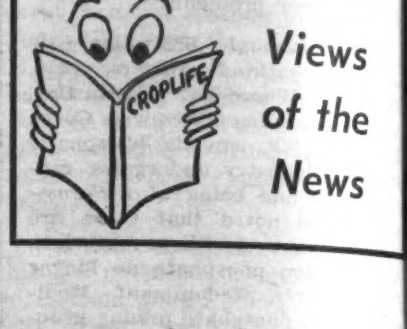
ILLINOIS ANHYDROUS CONFERENCE — More than 150 persons gathered at the University of Illinois Sept. 6-7 for an anhydrous ammonia conference. Part of the group is shown above at the left during a tour of the Morrow Fields at the university. A. L. Lang, University of Illinois agronomist and general chairman of the conference, is shown at the left. The corn which frames the picture is growing on a plot that has been in corn continuously for 81 years. In the picture at the right L. B. Howard, dean of the University of Illinois College of Agriculture, third from the left, is in the midst of serving hot barbecued chicken. Shown with him, from the left, are Carl Buyer, Midwest Fertilizer Co., Vincennes, Ind., a director of the Agricultural Ammonia Institute; Jack F. Criswell, Memphis, executive vice president of AAI, and Gen. R. H. Wooten, Mid-South Chemical Corp., Memphis, president of AAI.



AT SOUTH CAROLINA MEETING — Above are scenes from the recent seventh annual meeting of the South Carolina Plant Food Educational Society, held at Clemson. Several of the speakers at the meeting are posed in the top photo. From left to right are Dr. Russell Coleman, executive vice president, National Plant Food Institute, Washington; Dr. H. P. Cooper, professor of agronomy, Clemson; Dunbar Oswald, Allendale, S.C.; Hugh A. Woodle, leader, Clemson agronomy extension work; Dr. Frank Boyd, agronomist, Virginia-Carolina Chemical Corp., Montgomery, Ala.; Dr. G. H. Collings, head, Clemson agronomy department; Fred W. Atkinson, Hartsville, S.C., and D. H. Banks, St. Matthews, S.C. In the center photo, Dr. Boyd makes a point during a talk on "soil testing and fertilizer ratios." Below, Dr. Coleman, left, is shown with Henry E. Gifford, Columbia, S.C., president of the society. A report of the meeting appeared on page 6 of the Sept. 10 issue of Croplife.

CALIFORNIA EXHIBIT—This exhibit of an eight-foot scale model of a Boeing PT-17, suspended over a display of fruits, nuts and vegetables, was shown by Contra Costa County, Cal. at the California State Fair in Sacramento. The exhibit, which cost $1,200 to build, took second place in its class. After seeing it (and with propeller in cheek) Al Morrison, Sacramento County agricultural commissioner, threatened to file multiple violations against Art Seeley, Contra Costa County agricultural commissioner. These alleged violations include engaging for hire as a pest control operator without a license; engaging in the business of pest control without county registration; operating an aircraft with a pilot not possessing a valid certificate of qualification, applying injurious herbicides without a permit, etc., etc.

GOOD LUCK TO SUCCESSOR—William W. Allen, left, Dow Chemical Co., Midland, Mich. and retiring president of the National Agricultural Chemicals Assn., extends best wishes to his successor, Fred W. Hatch, Shell Chemical Corp., New York at the recent meeting of NAC in Spring Lake, N.J. Mr. Hatch, formerly vice president, took over the reins at the group's annual convention held Sept. 5-7 at the Essex and Sussex Hotel, Spring Lake, N.J. Succeeding him as vice president is Jack Vernon, president, Niagara Chemical Division, Food Machinery & Chemical Corp., Middleport, N.Y. Lea S. Hitchner was re-elected as executive secretary and treasurer of the association. His headquarters are in Washington, D.C.



Views of the News

2,4-D REGARDED SAFE

PORTLAND, ORE.—Just how safe is 2,4-D?

In answer to this question, E. M. Nelson, Wasco County agent, says that so far as is known, this weed control chemical is toxic neither to humans nor livestock.

"There have been reports of persons accidentally taking fairly large doses of 2,4-D without any ill effects," Mr. Nelson said. "Cows have contentedly chewed their cuds after a big feed liberally spiced with 2,4-D and even hens have kept right on cackling and laying when their mash was drenched with the chemical."

Mr. Nelson points out, however, that there have been cases where livestock were poisoned when a pasture was sprayed to kill poison weeds.

This is rather rare, but because of the chances, the Wasco County agent advises not to graze a pasture for a week or two after spraying it with 2,4-D. He also explains that cases of allergy to 2,4-D and other farm chemicals appear in medical records, but are considered rare.

Rutgers Fertilizer Conference to Hear Talk on Advertising

NEW BRUNSWICK, N.J.—Uses and abuses of modern advertising will be considered Sept. 27 at the annual Rutgers University fertilizer conference, along with other topics of interest to the fertilizer industry. The speaker will be Sigurd Anderson of the Federal Trade Commission, Washington.

Edwin C. Kapusta, director of technical service for the U.S. Potash Co., New York, will discuss recent trends in fertilizer manufacture, according to Dr. Stacy B. Randle, research specialist in chemistry at the College of Agriculture, who announced details of the program.

The boom in home gardening and home grounds improvement is reflected in two topics to be presented by state university staff members. Dr. Ralph E. Engel will outline recommendations for feeding turf grasses, and Raymond P. Korbobo will give suggestions for feeding ornamental plants.

Dr. Bailey B. Pepper, chairman of the Rutgers department of entomology, will give views on fertilizer-pesticide mixtures. Dr. E. R. Purvis, soils research, will describe one of his projects under the title, "Farming the Pine Barrens."

Sessions will be held in Lipman Hall, College of Agriculture, beginning at 10:15 with greetings from Dr. William H. Martin, dean of the college and director of the experiment station.

Fertilizer Equipment Auction Scheduled

ONAWA, IOWA—Tiger Chemical Co. has announced that it will sell $250,000 worth of new and used 1955 fertilizer equipment at an auction sale at the fairgrounds here Oct. 1.

Included in the merchandise to be offered are 29 nitrogen applicators, 52 weed sprayers, spraying equipment, storage tanks, tractors, tires and other equipment. The sale will start at 9:30 a.m.

FIELD DAY CANCELED

MANHATTAN, KANSAS—Cancellation of the field day scheduled for Sept. 25 at the Cornbelt experiment field near Powhattan, Kansas, has been announced by R. V. Olson, head of the agronomy department at Kansas State College in Manhattan. Mr. Olson gave extreme drought conditions as the reason for the cancellation.

Dow Starting Another Round of Expansion, Stockholders Told

MIDLAND, MICH.—The Dow Chemical Co. has embarked on another round of "vigorous expansion" and expects to spend considerably more than $75 million in the current fiscal year, Dr. Leland I. Doan, Dow president, told stockholders at the company's annual meeting here recently.

More than 86% of the outstanding Dow shares were represented at the meeting either in person or by proxy. The shareholders reelected all incumbent members of the board of directors for the ensuing year.

Dr. Doan declared that an expansion program is necessary because "we are already crowding capacity in some of our basic building-block lines such as chlorine, bromine, ethylene, power and so on." The $75 million-plus proposed for expansion compares with about $60 million spent in fiscal 1956 and $50 million in 1955, he said.

The Dow president noted that some expansion now in progress will further decentralize the company's operations and said that decentralization will be continued in the future whenever it best serves Dow's long-range interests.

New plant locations being developed in the current year include Plaquemine, La., Lee Hall, Va., Hanging Rock, Ohio and Riverside, Mo.

Dr. Doan said that while the company's increase in earnings of nearly 60% in fiscal 1956 ended May 31 was "particularly pleasing," stockholders should not anticipate a similar percentage increase in fiscal 1957. "In the two previous years we had some excesses of capacity whereas this last year we were operating in most lines at about the practical limits of capacity," he said.

Dr. Doan noted that Dow workers again established a new safety record.

Arkansas Sales Total 354,906 Tons

FAYETTEVILLE, ARK. — Arkansas fertilizer sales in the fiscal year ended last May 31 totaled 354,906 tons, according to the department of agronomy, University of Arkansas Agricultural Experiment Station. The total include 174,552 tons of mixed goods and 180,354 tons of materials.

Included in materials sales were 61,325 tons of ammonium nitrate, 32,686 tons of muriate of potash, 23,549 tons of sodium nitrate, 22,018 tons of anhydrous ammonia, 10,748 tons of calcium cyanamid, 9,458 tons of triple superphosphate and 7,974 tons of superphosphate.

Leading grades of mixed goods were 5-10-5, 47,348 tons, 6-8-12, 22,542 tons and 10-20-10, 21,721 tons.

Sales in the state during the fiscal year ended June 30, 1955 totaled 329,715 tons, which included 155,105 tons of grades and 174,610 tons of materials.

July Superphosphate Output Exceeds That Of Year Earlier

WASHINGTON—U.S. July production of superphosphate and other phosphatic fertilizers amounted to 136,675 short tons (100% A.P.A.), an increase from the July, 1955 output of 93,769 short tons, the Bureau of the Census has reported. Output in June, 1956 was 169,418 short tons.

Shipments in July totaled 95,986 short tons, compared with 81,942 short tons in June and 64,323 in July a year earlier. Stocks on hand at the end of July amounted to 405,568 short tons, an increase from 388,630 at the end of June and 291,246 at the end of July, 1955.

Production in July of this year included 77,329 short tons of normal, 45,338 tons of concentrated and 13,181 tons of other phosphatic fertilizers. Production figures for enriched and wet-base goods were not reported.

Local Efforts Promote Experiment Station in Pecos River Valley

ARTESIA, N.M.—Farmers in the Pecos River Valley now have an experiment station in their own backyard. The Southeastern New Mexico Sub-Station, which was started last year, is just now getting its buildings complete, fields leveled and the long range programs set up.

"The station will work on problems found in the valley," said W. S. McGuire, station superintendent. "We've got some knotty local problems that show no signs of getting better. They include lowered soil fertility, alkalinity, lack of water, drainage, and problems concerning fertilizers and insecticides."

Long range aims will also include the improvement of cotton and alfalfa strains and the search for other crops suited to this area.

The establishment of the station was the work of local farmers and ranchers. They wanted a station for their own area but couldn't get one. So they went to New Mexico A&M College, worked out an agreement whereby the land owners would furnish a 160-acre farm, construct the buildings and drill an irrigation well. They also agreed to use their own leveling equipment to level off parts of the farm.

The station was financed by taxing farmers 50¢ for each bale of cotton produced. Several hundred farmers throughout Southeastern New Mexico contributed to financing the station.

The station has now been turned over to the New Mexico A&M College, under whose auspices it will be operated. Mr. McGuire is assisted by Bill Jackson, associate extension agronomist, and other scientists will be added as facilities become available.

One important part of the station is a laboratory contributed by the potash companies whose field operations are located at nearby Carlsbad.

Suez Won't Affe Pyrethrum Import

WASHINGTON, D.C.—Will an e bargo on shipping through the S Canal result in a possible shortage pyrethrum in the U.S.? This quest has been raised in the capital, U.S. Department of Agriculture o cials have expressed doubt that i ports of this insecticidal mater from Africa would be impaired ma rially.

It was noted here that since th material comes from the Keny Colony and the Belgian Congo, th ocean distance from these tw chief sources is not too much grea er around the Cape.

At the same time, it is thoug likely that any curtailment of mov ment of ships through the canal ca not help but disturb ocean tonna particularly if there is a large div sion of cargo ships around the ca rather than through the shorter ca route. To the extent that ocean shi ping distances would be increased the cape route from the Middle Ea to a proportionate extent availabili of ocean tonnage must be reduced.

While USDA officials are cautious optimistic, importers in the East ma take a cautiously pessimistic view a prepare for delay and distortion markets through fears of a comple tie-up of the canal.

Latest available figures on pyr thrum imports disclose off-shore shi ments to the U.S. amounted to 5,125 000 lb. in the form of flour.

Garden Supply Show Scheduled in Portland

PORTLAND—Dates for the sixt annual Northwest Garden Suppl Trade Show sponsored by the Orego Feed & Seed Dealers Assn. have bee set for Oct. 23-24, O. Hand, genera chairman, Portland, announces.

Only show of its kind on the Pacif Coast, the event is designed for th purpose of bringing retail store abreast with the latest techniques i merchandising garden supply line The two-day show will be held in th Grand ballroom, Masonic Temple Portland, and will highlight 55 booth featuring the latest in garden suppl merchandise, insecticides, fertilizer nursery plants and garden equip ment.

Retailers throughout the area ar invited to attend a sales promotio clinic where experts will advise o direct mail selling, advertising, tele phone selling, modern merchandisin techniques and proper methods o customer relations.

A clinic on the "mystery of fertil izers" will feature Lee Fryer an Dick Simmons, the Chas. H. Lilly Co Seattle.

Show planners anticipate a recor attendance of over 1000 persons fro throughout the area will be on han for the two-day event.

Measures to Prevent Bollworm Carryover Urged

LUBBOCK, TEXAS—Texas farm ers have been asked to carry out cer tain cultural practices to prevent large carryover of pink bollworm from the present crop.

C. B. Spencer, agricultural director of the Texas Cottonseed Crushers Assn., says that all cotton bolls an seed left in fields and around farm buildings should be destroyed. Worm hibernate in these during the winter then emerge next spring or summe to start a new infestation.

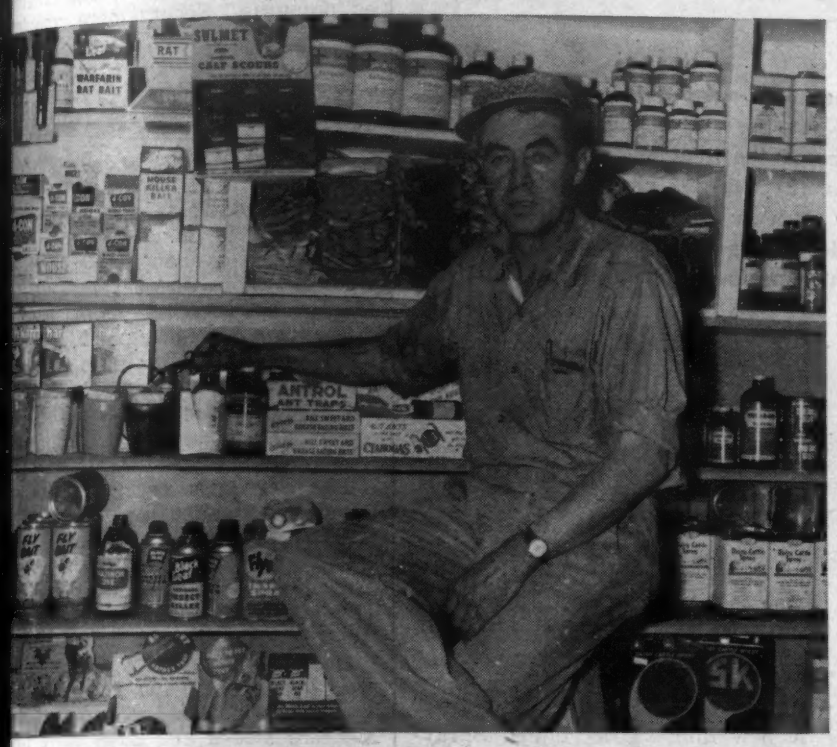
Another good practice is to plow the fields during the winter, turnin under any cotton trash left on th surface. Also winter irrigation helps because the moths will emerge earl and die from want of food. Lat summer irrigation should be avoide when possible.

Special Retail Section

Better Selling

Richer Fields for Dealers

A SPECIAL CROPLIFE DEPARTMENT TO HELP RETAILERS IMPROVE MERCHANDISING KNOW-HOW



UTAH DEALER — J. E. Robertson, owner of Springville Feed and Farm Supplies, Springville, Utah, is shown above in front of one of the attractive displays which are kept clean and shining. He has more than doubled business in a little over a year by revamping the merchandise, building and advertising and by putting out a determined effort to hold onto a once dwindling business.

Pepped-Up Store, Change In Selling Methods Pull Utah Business Out of Rut

By JESS F. BLAIR
Croplife Special Writer

The Springville Feed and Farm Supplies at Springville, Utah, was a little late in catching up with progress. However, in the last two years the owner, J. E. Robertson has caught up with the parade and may-be got a little ahead of it.

"Things were changing but we weren't changing with the times," he said. "The store had grown old and drab and we were just trying to hold onto old customers we had had for years."

By changes, Mr. Robertson meant several things. One is that Springville is almost a suburb of Provo, and since that city has grown so fast industrially, many workers have come to Springville to find homes. Farm land has been divided, crop acreage has dwindled and new homes built.

Mr. Robertson's feed and fertilizer business also dwindled. It was then he took stock of things and mapped out plans for a comeback along different lines.

Here is what he did: He cleaned out the store and rearranged everything in attractive displays. This meant buying new stock and adding many items that would appeal to the new residents, many of whom had gardens and orchards or a small flock of chickens. They would buy fertilizers and insecticides, but it would be in smaller packages.

The building was repainted an attractive red and white, and along the sidewalk he put out well-arranged displays, which included fertilizer, garden tools and such things as bird cages and pet supplies.

He stepped up his advertising until he was spending as much as a thousand dollars a year. The best advertising, he finds, is a small classified ad stressing one certain item and running for several days. For special items or sales, he often uses a larger advertisement.

Sales have more than doubled since the rejuvenation process was started. As the town continues to grow, Mr. Robertson expects to grow with it.

"We still sell to our farmer customers," he said. "They buy their feed and fertilizers here, and the dusts and sprays, but the big increase has come from those industrial workers who like to grow things during their time away from the mills."

Mr. Robertson has two sons who are now helping him in the business

(Continued on page 12)

SHOP TALK

OVER THE COUNTER

FOR THE DEALER

By EMMET J. HOFFMAN
Croplife Merchandising Editor

Farm chemical dealers who use price boards and display them prominently on the walls of their stores agree that their advantages far outweigh their original cost and the efforts to keep them current. Price boards appeal to farmers who, as a class, are a price conscious group.

Supermarket merchandisers have for many years known the appeal and importance of displaying prices prominently in the store. Their thinking is—and rightly so: "Let's make it as simple as possible for the prospect to buy merchandise." The practice of prominently displaying prices has not been so readily adopted in other fields of selling. Unfortunately, the majority of farm chemical dealers perhaps is in this latter category.

A price board is inexpensive, easy to maintain and with little attention, can be made and kept attractive from day to day. Once in use, price changes should be carefully kept up-to-date. Price boards offer the retailer an opportunity to post special discounts, too, adding that much more emphasis to related merchandising efforts.

Price boards are helpful to store's employees too because they can use it to check prices, discounts, bulk rates and other specials.

For a modest sum, one of the store's employees handy with a hammer, saw and paint brush, or the local sign maker, can provide the dealer with an important selling tool by making a price board.

$1,000 Credit Loss In 15-Year Period

Would you consider a $1,000 credit loss over a 15-year period by a retailer as a creditable record? For a business that grossed $200,000 last year, the loss can certainly be considered inconsequential.

Achieving this record is Sam Bruckner, owner of the Farmers Feed Co. at Ogden, Utah, since 1930. Mr. Bruckner says that he has always been careful in extending credit.

Mr. Bruckner believes he has a method that gets results. He investigates new customers to find out their reputation with other merchants before giving out credit.

If a man has hard luck and can't settle up on time, Mr. Bruckner tries to help him solve his problems and waits a while on the debt.

If he is convinced the man doesn't want to pay, he has a simple but effective method of collecting. He turns the debt over to a collection agency that has a reputation for getting results. This, however, is a last resort and is seldom used.

He believes in advertising and says it brings in several dollars for every one spent. He runs ads in the newspapers two or three times a week and sometimes uses radio and direct mailing.

Mr. Bruckner has four employees. Three are drivers but they are salesmen and general workers when not out on the route. The route schedules are staggered so that never more than two drivers are away from the store at the same time. When at the store they are prompt to wait on customers courteously and help load waiting pick-ups or trucks.

"We are always looking for more ways to give service to customers," he said, "and undoubtedly will find them. However, business is good despite tough competition, and our sales are going up every year. We didn't reach that $200,000 volume until a year or so ago, so now we're aiming for a little increase every month. The new store and equipment have been a big factor in getting this extra business."

CALIFORNIA TRIALS SHOW

Range Fertilization Pays Big Dividends

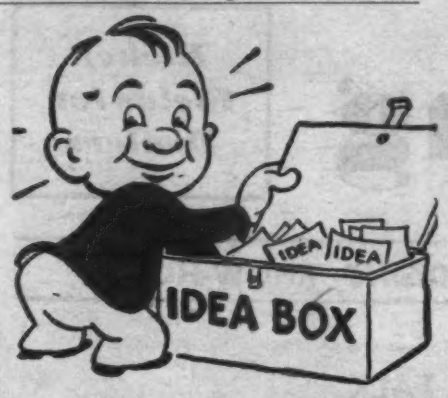
SAN MARINO, CAL. — Livestock producers in the dry range areas of California and the west are finding that range fertilization pays big dividends, reports the California Fertilizer Assn. Field-size fertilizer trials are progressing in a rapidly increasing number of different areas, under the sponsorship of segments of the fertilizer industry, advanced institutions of learning and cooperating growers, the association said.

Applications of 300 to 400 lb. of 16-20-0 per acre have produced significant increases in higher protein grass-legume forage. In one series of trials in nine California counties, this material has increased the stock-carrying capacity of the range from 3 to 6 times, at the same time making it ready for grazing from 6 to 8 weeks earlier.

The livestock turned out to graze on this fertilized range showed marked and rapid weight increases far beyond the animals grazed on adjacent non-fertilized fields. Spot tests, in which the fertilizer was applied to small areas on other near-by rangeland, indicated preference for this higher protein, higher mineral grass. The animals grazed these small patches down to the roots before turning to the less-palatable neighboring grass.

On the range of Norman Souza, a cooperating livestock grower in San Mateo County, a net cash gain of $42.56 per acre was registered over the $18 cost of material and application of 400 lb. of 16-20-0 on each acre, as compared with meat production on a non-fertilized field.

The weight gained was 337.4 lb. per acre on fertilized, and 42.0 lb. per acre on non-fertilized range, or a net gain from fertilization of 295.4 lb. per acre, following a single application of fertilizer.



What's New...

In Products, Services, Literature

You will find it simple to obtain additional information about the new products, new services and new literature described in this department. Here's all you have to do: (1) Clip out the entire coupon and return address card in the lower outside corner of this page. (2) Circle the number of the item on which you desire more information. Fill in your name, your company's name and your address. (3) Fold the clip-out over double, with the return address portion on the outside. (4) Fasten the two edges together with a staple, cellophane tape or glue, whichever is handiest. (5) Drop in any mail box. That's all you do. We'll pay the postage. You can, of course, use your own envelope or paste the coupon on the back of a government postcard if you prefer.

No. 6473—Seed Treating Unit

A new type of product called the liquid Adaptor is being marketed by Parsons Chemical Works. The product is used for converting the dust type automatic seed treaters to a liquid treatment process. It is all plastic and is claimed to be safe to use on any corrosive seeding treating chemicals such as various liquid mercury types. It is said to meet the specifications in those states where laws require dyed treated grain. A specification sheet which includes sectional drawings of the unit is available without charge. Check No. 6473 on the coupon and mail it to this publication.

No. 5535—Steel Tank Brochure

A 16-page color brochure on bolted steel tanks has been issued by the Columbian Steel Tank Co. Described on the cover as "catalog No. 656," the brochure shows pictorially the tanks manufactured by the company for a large variety of purposes. Some of the uses include grain storage, water supply, the storage of dehydrated alfalfa under inert gas pressure and various liquids. Improvements in tank construction by the use of new synthetic gasket materials is pictorially described in a two-page section and one section includes a partial table of the American Petroleum Institute's dimensional specifications for bolted steel tanks from 100 bbl. to 10,000 bbl. capacity. Copies of the brochure are available free. Check No. 5535 on the coupon and mail it to this publication.

No. 6478—Rotary Feeder, Seeder

The Smith-Douglass Co. has introduced a lightweight fertilizer distributor and seed sower, called the Nutro feeder and seeder. It is carried on the shoulder and is designed to carry up to 25 lb. of material. Movement of a lightweight handle applies seed or pelleted fertilizer in a rotary manner. The advantage, say company officials, is the distributor's ability to distribute fertilizer or seed evenly and steadily without leaving any area uncovered. To secure more complete details check No. 6478 on the coupon and mail it to Croplife.

No. 6480—Strawberry Weeds

Strawberry weed prevention with CRAG Herbicide-1 is described in a new strawberry folder released by Carbide & Carbon Chemicals Co., a division of Union Carbide & Carbon Corp. Company officials in announcing folder, state: "Growers and agricultural experiment stations report CRAG Herbicide-1 can save well over 75% of the labor that would go into handweeding and this new pamphlet shows how strawberry plants grow with increased vigor and give greater yields when strawberry rows are kept weedfree. The product kills weed seeds as they sprout and will keep out most broad-leaved and grass weeds for three to six weeks. Late summer applications help to prevent early fall and winter weeds." Copies of the folder are available by checking No. 6480 on the coupon and mailing it to Croplife.

No. 6475—Film

A new film, "Low-Volume Spraying," produced by the Hercules Powder Co., is the seventh in a series of films dealing with insect control, now available from Hercules. The newest in the series, like the first six, is available in 16-mm., sound-and-color. It depicts the procedures for mixing insecticides and adjusting sprayers for efficient operation. "Low-Volume Spraying" is a 14-min. film. Secure complete details about securing film by checking No. 6475 on the coupon and mailing it to Croplife.

Also Available

The following items have appeared in the What's New section of recent issues of Croplife. They are reprinted to help keep retail dealers on the regional circulation plan informed of new industry products, literature and services.

No. 6472—Organic Nitrogen

A sample and brochure describing an all organic nitrogen product manufactured by the Smith-Douglass Company, Inc., are available without charge. The product is called by the trade name, Nutronite, but was formerly called Smirow tankage. It is not a sewage or garbage sludge, according to the company's literature. The literature states that the product "is the 100% natural organic addition to mixed fertilizers. Its nitrogen is 90% water insoluble and 90% available—for that all-season effect on plant growth." The product can be bagged for lawn and garden fertilizers and is suitable also for golf courses. Dealer inquiries are invited. Mark No. 6472 on the coupon and mail it to Croplife.

No. 6474—Liquid Fertilizer Unit

Operational details of a "package liquid fertilizing mixing unit" built by the Standard Steel Manufacturing Co., Inc., are available without charge. The unit is claimed to be completely self contained and automatically meters and weighs all raw materials for batch mixing. It has a mixing capacity of 120 tons of liquid fertilizer every eight hours with one operator, company officials say. The mixing unit is skid mounted and 18 ft. long, 8 ft. wide and 14 ft. hi The company announcement c tinues: "The unit will handle d form potash, aqua ammonia, liqu urea-ammonium-nitrate, phospho acid and other liquid fertilizer ad tives. It can use anhydrous ammo for direct batch mix into compl liquid fertilizers without convert mechanisms. Accurately formula liquid fertilizers can be automatica compounded quickly in exactly met ed amounts." Secure more compl details by checking No. 6474 on t coupon and mailing it to Croplife.

No. 6461—Blight Booklet

An illustrated booklet on the r ognition and treatment of early a late blight in 18 different crops being made available by the Che Bam Division, Chemical Insecticid Corp. Also desribed in the book is the company's new fungicide dev oped for blight treatment. Secu the booklet by checking No. 6461 the coupon and mailing it to Croplif

No. 5542—Pallet Bag

The St. Regis Paper Co. has d veloped a "pallet bag" designed give a "squared-off" package whi permits better palletizing and i proved appearance of the contain The company announcement state "The length of the pasted bag shortened for improved pallet loadi and the size of the gussets is i creased to obtain the same volum A small sleeve and large valve pr vent siftage even though the wid of the gussets is increased. Lig scoring along the edges adds to t square shape of the bag. After t bag is filled, it moves on a convey to a vibratory flattener which fla tens the bag and contributes to ea palletizing." For more complete i formation check No. 5542 on t coupon and mail it to this public tion.

No. 5537—Rodent Control

New developments are reported b the Solvit Chemical Co. in its roden control unit called Kelly's neste "see-in" Rat Cafeteria. The unit claimed to provide savings on freig charges and storage space since th nested design enables shipment the completely assembled unit exce for a feed hopper and cover. Th parts are put together with clip without tools, and can be disasse bled quickly, the company's a nouncement states. The unit can b used for liquid or dry poisons both, it is explained in free literatu available to readers. To secure th literature check No. 5537 on th coupon and mail it to this publicatio

No. 6463—Treatment For Burns

A product called by the tra name, G-63 burn relief spray, is b ing produced by the General Scie tific Equipment Co. It comes in push-button spray bomb and th product is claimed to treat burns a protect the skin with a cooling emo lient film. Secure more complete d tails by checking No. 6463 on th coupon and mailing it to this public tion.

No. 6460—Bag Design Trends

The part played by redesigned fe tilizer bags in increasing sales emphasized by the Percy Kent Ba Co. Information concerning trend and sources in bag design develo ments is available from the compan Company officials state that fert lizer brand identification and bra selling are important in convinci the farmer to choose a particul product. Display advertising on t product package offers a major o portunity to the fertilizer manufa turer, it is claimed. Products in n

(Continued on page 13)

Send me information on the items marked:

- ☐ No. 5531—Cleanser
- ☐ No. 5535—Tank Brochure
- ☐ No. 5537—Rodent Control
- ☐ No. 5542—Pallet Bag
- ☐ No. 6460—Bag Design
- ☐ No. 6461—Blight Booklet
- ☐ No. 6462—Insecticide
- ☐ No. 6463—Burn Treatment
- ☐ No. 6466—Bagging Cost Kit
- ☐ No. 6468—Nitrogen Solutions
- ☐ No. 6469—Carrier Data
- ☐ No. 6470—Scale
- ☐ No. 6472—Nitrogen
- ☐ No. 6473—Seed Treating
- ☐ No. 6474—Liquid Unit
- ☐ No. 6475—Film
- ☐ No. 6478—Feeder, Seeder
- ☐ No. 6480—Herbicide

NAME .....

COMPANY .....

ADDRESS .....

—SLIP OUT—FOLD OVER ON THIS LINE—FASTEN (STAPLE, TAPE, GLUE)—MAIL—

FIRST CLASS PERMIT No. 2 (Sec. 34.9, P. L. & R.) MINNEAPOLIS, MINN.

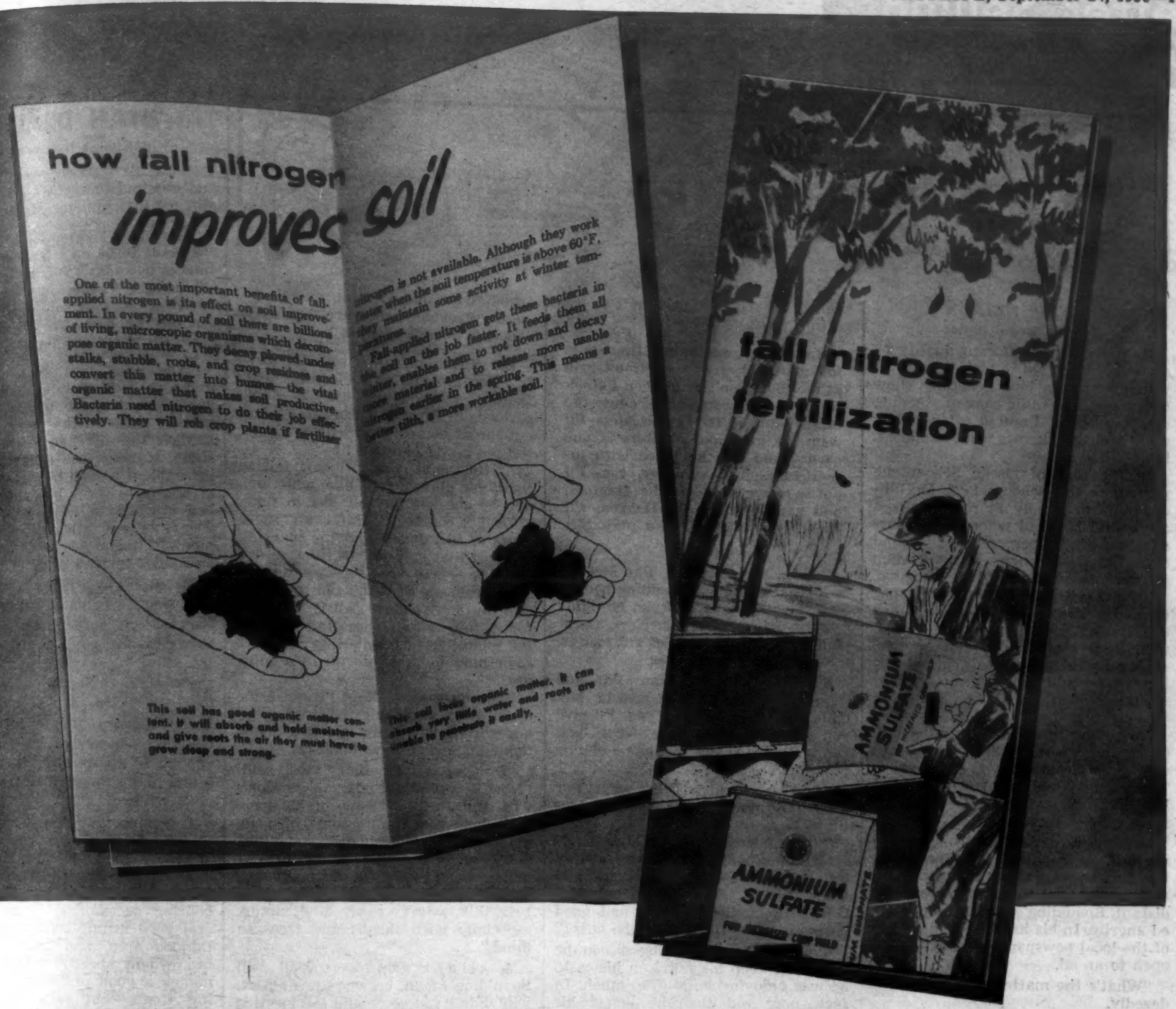
BUSINESS REPLY ENVELOPE
No postage stamp necessary if mailed in the United States

POSTAGE WILL BE PAID BY—

Croplife

P. O. Box 67,

Reader Service Dept. Minneapolis 1, Minn.



There's a big FALL market for USS Ammonium Sulfate

Here's how to make the most of it!

Fall nitrogen fertilization is gaining wider acceptance every year. It has proved to be a practical, profitable, time-saving practice. Get *your* share of this big market by acting now.

The makers of USS Ammonium Sulfate will send you free folders explaining the many advantages of fall fertilization. It's fully illustrated with map, photograph, charts and drawings; explains what crops most benefit from fall fertilization; suggests amounts to use, proper methods of application, plus other important fertilizer facts.

Take a few minutes right now to fill in the coupon below. When your supply of fall fertilization folders arrives, circulate them among your customers, and place a supply on your counter. You'll find this folder a real help in selling non-leaching USS Ammonium Sulfate for fall fertilization.

Don't run short of USS Ammonium Sulfate this fall. Check your supply, place your fall order and send for your free folders, today.

USS Ammonium Sulfate

—CLIP AND MAIL—

Room 2831, Agricultural Extension
United States Steel Corporation
525 William Penn Place, Pittsburgh 30, Pa.

Please send me _____ free copies of your folder, "Fall Nitrogen Fertilization."

NAME .....

COMPANY .....

ADDRESS .....

CITY ..... STATE .....

UNITED STATES STEEL

Doing Business With

Oscar & Pat

By AL P. NELSON
Croplife Special Writer

Happiness is a different quality or state of mind to many people. A young couple in love generally show happiness; a man or woman stepping out of a hospital, cured after a long siege of illness, knows what happiness is.

In the case of Oscar Schoenfeld, partner in the Schoenfeld & McGillicuddy farm supply store, happiness crept into his soul when credit purchases declined percentage wise and cash purchases increased, or when delinquents paid bills long overdue, or when Oscar found another bill that could be discounted, or some other operational saving could be found, such as a stray paper clip or two, rubber bands, or more discarded letters that could be stapled together, so the backs could serve as note paper.

Now, figuring up a discounted bill, Oscar almost smiled. Suddenly his reverie was broken by a gruff voice, "Hey, Schoenfeld, what are you and McGillicuddy trying to do—give me more competition?"

Balding, rotund Oscar looked up to see tall, dark haired Bill Spaulding, the florist and nurseryman who had a store and land about a quarter mile distant. Spaulding's dark eyes glittered angrily. In his hand he held a copy of the local newspaper. It was turned open to an ad.

"What's the matter?" Oscar asked dazedly.

"What's the matter?" Spaulding intoned. "As if you didn't know. I mean this ad you fellows are running this week. The one about offering a tree service—free. The one which says that retired Bill Jones has nothing to do, he loves trees and so he will help anyone locate trees for transplanting.

"He knows," and here Spaulding read from the ad "where there are many small elms, black walnuts, horse chestnuts, ash, maple and other trees in empty lots, in yards and other places. The owners want them removed. You can have them, so call up and ask for Bill and he'll tell you where."

"Ach, I know," Oscar protested. "I told Pat that was foolishness, but he goes on spending money like a full sailor. Always he has ideas."

"Well, why didn't you stop him?" thundered Spaulding. "You're a partner in this firm! Listen" and he pointed a long, wiry finger at Oscar, "if you guys want competition, I can give it to you. Does it ever occur to you volume-hungry pirates that I sell trees? I also sell shrubs of every kind and lots of potted plants!"

"I know," Oscar said. He could not help feeling secretly elated that at last Pat had gone too far. This time his promotion scheme would backfire. His whiskers would be singed, and he, Oscar, certainly would not break his back to throw water on the fire.

"I'm a business man who respects the other fellow and his lines—so long as he respects me!" barked Spaulding. "But when he starts cutting into my lines, I get mad. I handle only a little garden fertilizer and some insecticides as an accommodation to my customers. But if you fellows are going to get rough—taking tree business away from me—I can get rough, too."

"Ja, sure," Oscar said, smiling slightly at the predicament Pat was getting into.

Spaulding, mistaking the smile for contempt, growled: "Don't grin at me. You won't grin when I stock farm fertilizer and discount the blazes out of it. Insecticides—I'll slam my gifts and planters in one corner and fill the place with insecticides. And sprayers, too. I'll put in mowers, and garden tractors, and garden tools. By Heaven, I'll show you fellows I can play this game, too."

During this outburst, Pat McGillicuddy had come in. Spaulding had his back toward Pat's desk, so he didn't see the Irishman enter. Now, Oscar pointed his finger in Pat's direction, a slight smile in his eyes.

Spaulding whirled, saw Pat and then stiffened. "So you heard? McGillicuddy, I'm warning you. I'll give you a run for your money—both you guys. Two can play this game of line jumping."

"Just a minute, Bill," said Pat softly. "Sit down. I can explain everything."

"You can't explain anything else!" sputtered Spaulding. "You're cuttin' into my lines giving people shrubs and trees free of charge. My God, McGillicuddy, I thought you had good business sense. Have you gone nuts?"

Oscar, back at figuring discounts, could not keep his mind on his task, he was enjoying himself so much. In fact, now and then he licked his chops and didn't know he was doing it. Ann Hydrous, the grey Maltese cat at the top of the safe, opened one eye then battened down her ears. She disliked quarrels; she loved to sleep.

"We are not running into competition with you," Pat said slowly. "Bill, there can't be more than 50 seedling trees and bushes around town to transplant, and it will give Bill Jones the biggest lift he has had in years. He knows a lot about trees. Why he's planning to take groups of Boy Scouts, Girl Scouts and adults on tree identification tours around town, just to get them more familiar with the many wonderful trees we have in this vicinity."

"Huh!" said Spaulding sarcastically, "this tree education is going to be at my expense, eh, with Jones spotting trees that can be had free for transplanting? Oh, I can see where you'll sell a little fertilizer out of the deal and some lawn and garden tools maybe. But how about me—I'll lose!"

Pat shook his head in denial of this statement. "No, you'll win, Bill. It will be one of the best sales promotions that ever hit your business. Provided you are smart enough to cash in on it."

Bill Spaulding's lips set stubbornly. "You are talking foolishness, Pat. Before I take off and order a couple carloads of farm fertilizer to go into cut-throat competition with you, just tell me how I can benefit."

At this point, Oscar's heart felt so light, he almost felt like whistling, and he checked himself just in time.

"Bill," continued Pat, "all these tours of Bill Jones' and the planting of trees that can be had for free are going to create more interest in trees and shrubbery than this old town has seen in many a day. Fall is the time for it, too, so folks can plan for better plantings next spring. It isn't something they decide on in a minute."

"You mean, you think I'll get a lot of business after all the free trees and shrubs have been given away?" Spaulding asked incredulously.

"I mean exactly that!" Pat said. "Now if you would offer to go along with Bill Jones on some of his trips and show the groups some of your plantings at various homes, you might get some orders then or later. And maybe some of the interested groups would ask you to give them a talk or two this winter on landscaping, especially with shrubs and trees in mind."

A slight grin overspread Bill Spaulding's lean, browned face. "Pat, why didn't you come and tell me this before you ran that ad? It made me mad."

Pat grinned a little shame facedly. "I should have," he said. "But I was so busy I thought you'd see where you could benefit. I've learned my lesson, too. Next time I get a promotion like this I'll put in extra time on it visiting every good neighbor merchant who might be affected."

Bill Spaulding was about to make a favorable reply, but a series of coughs interrupted him. He looked up to see red-faced, stiff-backed Oscar walking toward the warehouse door at a rapid pace.

"What's the matter with him?" Spaulding asked. "He must have swallowed a fly. Well, count me in, Pat. Guess I won't order that field fertilizer after all, at least until I see whether this Jones' deal brings in some orders for me."

"It will," Pat said. "I'll bet a steak dinner on it."

"Okay," said Spaulding. "If I lose, I'll be glad to pay up, and buy you a predinner Manhattan, too."

HIGHWAY ADVERTISING—California commercial fertilizer companies are taking more and more to the highways to advertise their products. Here are examples of three outdoor signs fronting on important traffic links in the San Joaquin Valley, and sponsored by the Best Fertilizers Co. of Oakland, John Taylor Fertilizers and the Agricultural Ammonium Service of Lodi in cooperation with Ortho Products.

UTAH DEALER

(Continued from page 9)

and has had to argue them down moving to a quieter street.

"I wouldn't agree to it," he said. "I want to be on a busy secondary street nowadays. Buying habits are changing. People no longer will drive a block or so out of the way to buy an item. They'll walk into the nearest store for it.

"And that first trip will often make you a new customer. Most people do impulse buying, so after getting them in the store, you need to have the merchandise out in plain sight. It helps the selling also. For instance, if a man buys a small sack of poison to spray his orchard, I can nod toward a sprayer or pruning shears or any other allied item and mention them. Quite often I make two sales instead of one."

Mr. Robertson now stays open until 6 p.m. to catch this flow of workers as they return home from the factories. He says if 500 cars pass the store, he may get four or five of them. If there is just one new customer, the extra time is well spent.

Just getting people to buy merchandise, however, is not always enough to assure a profit. Merchants selling more than Mr. Robertson have gone bankrupt.

The important things, he says, are to hold down unnecessary overhead, eliminate credit losses and push the long profit items. The most profitable items in this store are motors and boating accessories. There are several good fishing lakes in this mountainous area, and many customers are ardent sportsmen. He not only makes a good profit on these sporting items, but sells these people many of their home needs.

He has a low overhead because he owns the store and the family does most of the work. Most items are sold direct to customers, but he does make deliveries of feed and heavy sacks of fertilizer to farmers.

The third bugaboo, credit, has not troubled Mr. Robertson much. He does some credit, but it is only half as much as some merchants do. Some of the farm trade must be conducted on a time basis. However, he knows these people well, is an old friend to most of them, so he knows just who is a good risk.

On the industrial workers he is more cautious. They are honest enough, Mr. Robertson says, but some of them are making installment payments on so many things that a period of illness or idleness from work would put them deeply in debt. So these credit risks are screened thoroughly. Even with customers who pay regularly, he never lets them get too far behind in payments.

Since his rejuvenating job on the store, Mr. Robertson is very observant about small things. He says he tries to stay on top of the business instead of walking behind it.

"Perhaps it's a new state of mind you acquire when you become determined to succeed," he said. "I'm careful to see that everything is kept clean and orderly, that we are courteous and businesslike to every customer, that we act with dignity and integrity. We try to create an air of prosperity about the store, because no one wants to do business with a failure.

"Maybe some of this seems unessential," Mr. Robertson concluded, "but business has been steadily increasing the last year. So I believe each one of the little things mentioned has contributed something."

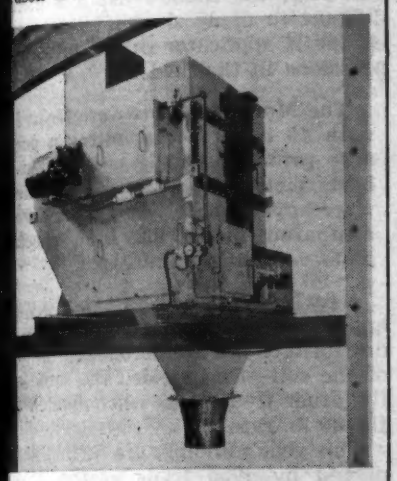
WHAT'S NEW

(Continued from page 10)

ntainers—with the design revamp- to look cleaner, brighter, more odern and with the product bene- clearly pictured—enjoy an un- istakable sales boost, it is stated. ecure more complete details by ecking No. 6460 on the coupon and ailing it to Croplife.

o. 6470—Fertilizer cale

A new automatic fertilizer scale hich is claimed to weigh and bag to twenty 80-lb. bags of fertilizer minute is announced by the Rich- dson Scale Co. Pilot tests have



roduced accuracies within 4 oz., the nnouncement states. Called the A-39 fertilizer bagger, the unit in- orporates such features as a power riven belt feeder within the scale, r cylinder discharge of hopper, to- lly enclosed construction and stain- ss steel construction of all contact arts and parts exposed to fertilizer ust. Secure more complete details y checking No. 6470 on the coupon nd mailing it to Croplife.

No. 5531—Cleanser

Increased wetting properties and reater cleansing power are claimed or Pennsylvania Salt Manufacturing ompany's product called General anual Kleanser. Known as a farm nd dairy cleanser, it has been re- ormulated to include nonionic and nionic wetting agents and additional olyphosphate content to make it ore effective in hard water areas. he product is available in 5-, 10- nd 25-lb. farm packages and 125- nd 350-lb. bulk sizes. For more com- lete details check No. 5531 on the oupon and mail it to this publication.

No. 6462—Insecticide

A new liquid insecticide, trade- amed Drinox, has been placed on he market by Panogen, Inc. The roduct contains aldrin and is laimed to be "effective in protect- ng newly planted seed and young eedlings from attack by wireworms, eed corn maggots and a variety of ther soil-dwelling insects." It is ecommended for treating wheat, ats, barley, rye, cotton, corn and orghums. Seed germination is not armed, it is claimed, and the prod- ct comes as a true solution (not a lurry), ready to use without mixing r diluting. For further information heck No. 6462 on the coupon and ail it to this publication.

No. 6469—Carrier Data

Officials of Minerals & Chemicals Corporation of America state that etailed information on Attaclay and ranular Attaclay—carriers and dil- ents for pesticide dusts, wettable owders and new granular formula- ons—is now available in Spanish nd Portuguese languages. The ma- terial is so arranged as to be of maximum value to persons interested in the development of pesticides, fungicides, herbicides and other agricultural chemical dusts and powders. Free copies are available by checking No. 6469 on the coupon and mailing it to Croplife.

No. 6468—Nitrogen Solutions

A new, 48-page nitrogen solutions handbook for the fertilizer and chemical industries has been published by Nitrogen Division, Allied Chemical & Dye Corp. According to the company's announcement, the book contains up-to-date nitrogen solutions technical data and describes the chemical and physical properties of solutions and how to store, handle and use them in fertilizer manufacturing. The book also presents new information on granulation and formulation of fertilizers. Numerous formulas and conversion factors also are included. The handbook is illustrated with scenes of typical fertilizer manufacturing and solutions handling arrangements. Copies may be obtained free of charge by checking No. 6468 on the coupon and mailing it to Croplife.

No. 6466—Bagging Cost Kit

A new "do-it-yourself" packaging work kit, designed to help fertilizer manufacturers figure bagging costs, is available at no charge from Union Bag-Camp Paper Corp. The kit contains tables for determining the labor costs per ton of material and per thousand bags at varying production rates. Also enclosed is a chart which figures the cost of multiwall bag closing materials (cotton thread, rayon thread and filter cord) as well as a bag cost comparison sheet. Secure the kit by checking No. 6466 on the coupon and mailing it to Croplife.

WATER CONFERENCE

STATE COLLEGE, N.M.—A statewide water conference will take place at New Mexico A&M College, Oct. 31 through Nov. 2, to discuss the water resource and development problems in New Mexico. Dr. Ralph Stucky, head of the Agricultural Economics Department at New Mexico A&M, is general chairman.

PROFITABLE ENTERPRISE — Diversification has been the key to the profitable operation of the aerial spraying service offered by Loren Inman, shown above in front of one of his three airplanes. His firm, the Val-Air Service, Lamar, Col., has branched out to include many agricultural services, thereby spreading the work season and earning period over most of the year. The company sprays sagebrush, weeds and crops for a wide variety of insects and seeds rangeland.

Colorado Aerial Sprayer Ups Profits By Offering More Off-Season Services

One disadvantage the aerial chemical contractor faces is the short seasonal work. If he sprays for insects, he is active only for a few months. If he seeds range land, kills weeds or does any other type of aerial work in agriculture, he faces this same short work season. He is busy for a relatively short period, then idle the rest of the year.

At Lamar, Col., Loren Inman has overcome these problems by doing all the jobs mentioned and a few others besides. Thus he is busy most of the year except during the coldest months. He had this in mind when he established his Val-Air Service in 1947, though several years passed until he could build business up to its present scale.

During May and part of June he sprays sagebrush that stretches to the north and south of the Arkansas River Valley. After the sagebrush work ends and often before, he begins spraying weeds on the valley farms. He is also kept busy with thrips, aphids and other insects most of the summer months. In addition, he seeds range and sprays for grasshoppers within a 50-mile radius of Lamar.

"There is not enough work to make a sufficient year's net profit on any one type of work," Mr. Inman says. "To make good in this business, you've got to learn kinds of work applicable to planes and then keep them in the air."

Every job is different and requires a special knowledge of handling the plane and a different technique of applying the chemicals, Mr. Inman says. "For instance, with some insecticides we must wear rubber suits and masks. Not all pilots do it but we do things the safe way. Also we've learned to be careful with cross winds, because the spray may drift and ruin a crop of vegetables a quarter mile away. This puts us in an embarrassing position and might cost thousands of dollars for restitution."

Mr. Inman built his three planes with a special design. The spraying units are placed in front to give better balance and added safety. The planes have been stripped of every non-essential and are easily maneuvered during the most difficult flying job.

He also picks his pilots as carefully as he does the planes. He picks men with considerable flying experience. He wants men who are cool-headed, men with good personalities who can work harmoniously with farmers and ranchers.

In training his men, he first makes swoops over fields several feet above the ground. Gradually they fly lower until they are skimming the ground just inches above the top of the plants. As a result of building good planes and picking good men, Mr. Inman has never been plagued with accidents.

The Val-Air Service, an abbreviation of Valley-Air, has sprayed as much as 100,000 acres a year. However, this has dropped somewhat since the drouth hit eastern Colorado and dried up many of the valley farms. Despite the loss of acres, he has kept profits fairly consistent by using efficient business methods.

One way of getting business is to stay in one area, he feels. Also he gives his two flyers an opportunity to do much of the soliciting. They contact farmers, quote prices and set dates for work. They are family men who want to make Lamar their home, so they have an interest in the business.

Each flyer has a certain area given to him, where he learns all the farmers and ranchers, becomes friends with them and becomes acquainted with their problems. If he hears a justifiable complaint, he tells Mr. Inman and they try to correct it.

"They're certainly better men than itinerant flyers," says Mr. Inman. "These boys know their jobs and what the problems are. If I'm not around, things will keep running just as smoothly as ever."

One thing Mr. Inman set out to do at the beginning was to learn all he could about chemicals. He has not only read widely, but works closely with entomologists, county agricultural agents, Soil Conservation Service officials and other professional agricultural workers.

Because he has studied hard and stayed in one area, Mr. Inman knows every kind of crop grown in the region and the insects and diseases that attack them. He knows the weather conditions, when to spray and when to leave the planes in the hangar.

Every year he attends a short course at Colorado A&M College where the sprayers' industry convention is held, and where the latest chemicals and methods are discussed by authorities.

Mr. Inman buys chemicals in large drums which he stores in a building near the hangar. When the job begins, he takes a load in a truck and drives it to the area where the planes can land and reload with a minimum of flying.

He gets retail prices for all chemicals plus a charge of 50¢ to $1 per acre, depending upon the type of job and the terrain over which the plane flies. For small fields surrounded by trees the job would be somewhat higher. The cost details are always worked out with the farmer before the job begins. This keeps down misunderstandings.

Mr. Inman hasn't been bothered with competition in recent years. Because he and the pilots live there, they know conditions better than anyone else and can consequently give the farmer better service. They keep the same customers year after year plus sveral new ones, since the use of chemicals in farming is now becoming more widely known.

"It's certainly not an easy business to run," Mr. Inman says. "A lot of contractors have found this to be true. Yet I'm well pleased with it. By hard work and attention to details, we've done a lot of work here and will do a lot more. Even with the worst drouth in recent years now pinching down on valley farm crops, I can come out ahead.

"If we can get a good year, I know a vast amount of work will be waiting for us."

Mr. Inman was referring to the long range plans for reseeding thousands of acres of barren rangeland. Soil Conservation personnel and other government workers have devised methods of reseeding which will bring grass back to the area when rains come again.

And with the reputation for honesty and service the Val-Air company has built up during the years, it's a safe bet that Mr. Inman and his two pilots will get the biggest part of the reseeding job.

California Sales Hit New High in Second Quarter

SACRAMENTO — A record-breaking 358,524 tons of commercial fertilizers was purchased in California during the April-May-June quarter of 1956, according to Allen B. Lemmon, chief of the California Department of Agriculture's Bureau of Chemistry.

Mr. Lemmon said that the tonnage reported for the quarter exceeds the entire annual tonnage used in the state 12 years ago. He noted a particular increase in the use of liquid fertilizers which he said accounted for one third of the total tonnage during the quarter.

One of the most popular forms of nitrogen fertilizers was ammonia solution containing nitrogen 20%. This material alone made up one-quarter of the total tonnage of commercial fertilizers.

Dry, mixed commercial fertilizers totaled 75,380 tons and ammonium sulfate, 57,497 tons.

Organic materials such as seed meals, blood meal, fish meal and tankage, once major items in the fertilizer field, now constitute only a small portion of the tonnage, Mr. Lemmon said. He explained that they have been crowded out by heavy increases in use of manufactured fertilizer compounds.

LETTUCE COMEBACK

FORT COLLINS, COL.—After several years as a sideline activity, lettuce production is on the comeback trail in San Luis Valley in Colorado. An estimated 5,500 to 6,000 acres were planted to lettuce this year, more than double the 2,300 acres in 1955.

Wheat Yields Same With Different Nitrogen Spacings

CORVALLIS, ORE.—Different spacings of liquid and gas nitrogen fertilizer applications had little or no effect on wheat yields this year at the Oregon State college Sherman branch experiment station at Moro.

Bill Hall, station superintendent, says Rio wheat yields from test plots this summer were comparable for both anhydrous ammonia and aqua ammonia nitrogen when fertilizer applicator shanks were spaced 16, 22 and 32 inches apart.

Depth of application, tested at 3 inches and 6 inches, for various spacings also gave no yield differences. However, the shallow depth is more difficult to apply since nitrogen may escape if applicator shanks cross depressions in the field.

The Moro test plots were treated with 40 lb. of actual nitrogen per acre prior to seeding last September. Yields from all treatments were approximately 29 bu. per acre compared to 23 bu. from check plots receiving no nitrogen.

A further check against results was application of ammonium nitrate—a dry form of nitrogen broadcast on top of the soil—that yielded the same as the other treatments when applied at the 40-lb. rate.

This year's findings are further supported by 1955 trials at the Moro station when equal wheat yields were obtained with shank spacings of 10, 16, and 22 inches and depths of 3, 6 and 9 inches. Similar results have been reported from the Pendleton branch experiment station.

Mr. Hall said wide spacing of shanks caused some "streaking"—the result of concentrated application of nitrogen in individual shank rows. The streaking which was noticeable until wheat headed did not appear to shrivel wheat kernels or cause any other detrimental effects.

The project is part of the cooperative research program between Oregon State College and the Agricultural Research Service of the U.S. Department of Agriculture.

New Mexico Unit Seeks Program Ideas

ALBUQUERQUE, N.M. — Suggestions for the program of the 11th annual convention of the New Mexico Grain & Feed Dealers Assn. are being sought by the association's secretary, H. B. Hening of Albuquerque.

The meeting will be held at the Hilton Hotel in Albuquerque Jan. 13-15. Sales and service topics, advances in feed and fertilizer technology, and legislative matters are some of the program suggestions under consideration. Laws affecting the industry will be a certain topic since the New Mexico Legislature will be in session during January and February of 1957.

Dealer Meetings Set in Washington

PULLMAN, WASH. — Two fertilizer dealer meetings have been scheduled in Washington in early October under the sponsorship of the Pacific Northwest Plant Food Assn. and the State College of Washington.

One will be held Oct. 2 at the Mt. Vernon Experiment Station and the other Oct. 3 at the Irrigation Experiment Station at Prosser.

Subjects on the program at both meetings include the outlying testing program, factors influencing soil productivity, soil testing, what's in the fertilizer bag, fertilizer recommendations and leaf analysis.

FARM SERVICE DATA
Extension Station Reports

Another nematode has been discovered attacking alfalfa in Southern California.

Plants raised in soil infested with the microscopic worm were severely stunted, according to a report by University of California scientists.

Because of the widespread distribution of the nematode in the Southland, the pest could be having a serious effect on one of the state's most important field crops, the scientists point out. The damage was not previously suspected, apparently, because it does not produce specific leaf symptoms.

The pest attacking alfalfa has been identified as the stubby-root nematode, which is known to attack beets, sweet corn, and other vegetable and field crops. A related pest, the citrus nematode, infests an estimated 95% of the citrus acreage in California.

Preliminary greenhouse tests indicate that fumigation of infested soil with ethylene dibromide will result in increased growth of alfalfa. Investigations are continuing to determine if other soil organisms are involved.

The project is being conducted by Dr. Ivan J. Thomason and Dr. S. A. Sher, assistant nematologists in the University's Citrus Experiment Station at Riverside.

★

Carefully-timed herbicide sprays during the next few weeks will help Oregon farmers control annual weedy grasses in grass seed fields, says Rex Warren, Oregon State College farm crops specialist.

★

Chemical sprays have given "fairly good control" of weeds in tomato plots at the Utah State Agricultural College's Farmington experimental farm.

This was pointed out as tomato growers, cannery officials and other interested persons from throughout northern Utah counties turned out for a recent field day.

Rulon Draper, farm manager, said the chemical was sprayed into the ground at the sides of tomato plants with no particular effort being made to protect the plants.

The chemical became effective as it came in contact with the ground and killed many weed seedlings as they pushed through the surface soil.

★

Pastures at Utah State Agricultural College's North Logan experimental farm have given heavy production for years. A six-acre pasture made up of a mixture of 32 grasses and legumes last year produced 8,340 lb. of milk and 320 lb. of butterfat per acre from forage alone.

Prof. George Q. Bateman, associate research professor of dairying at Utah State Agricultural College, says that if irrigated pastures are to yield large amounts of fat and milk economically certain conditions must be met.

1. The most productive pastures are made up of a combination of grasses and legumes. High yielding mixtures contain brome, orchard, or tall meadow oatgrass, with red clover, ladino clover, or alfalfa as the legume.

2. Best success has been found in starting pastures with a nurse crop and by planting in a seedbed that is firm and contains adequate moisture.

3. Frequent, light application of water is advised. At USAC, pastures are irrigated from five to seven times a season.

4. Even though palatable, high-yielding plants are used in the pasture mixture, forage production will be disappointingly low unless there is adequate soil fertility. Pastures at North Logan are fertilized with 200 lb. of treble superphosphate and approximately 10 tons of manure per acre every second or third year.

5. Size of pasture and rate of stocking should be regulated with moveable electric fences so that when there is an abundance of forage it will be eaten in a short time with little waste. At the USAC pastures, the dairy herd is allotted just enough pasture so that the forage is consumed in approximately 24 hours.

★

A new spinach variety has proved completely immune to downy mildew in University of California state-wide tests during the past two years. Yields of the new variety, Califlay, are equal to those of the commercially important Viroflay, from which it is derived. Paul G. Smith, associate professor of vegetable crops in the College of Agriculture at Davis, developed the new variety by crossing Viroflay with a wild spinach from Iran.

★

Iron chlorosis is becoming widespread in New Mexico, according to Bill Wiltbank, New Mexico A&M extension horticulturist. To combat this condition he suggests a foliar spray containing iron, repeated every one or two weeks until plant leaves are a healthy green again, or application of one of the new chelated iron compounds.

Systemics Promising As Leaf Hopper Control In California Tests

BERKELEY, CAL.—Newly discovered systemic insecticides show promise of controlling a tiny insect that is currently infecting thousands of acres of sugar beets with the deadly curly top virus.

Although results are still experimental, beets grown from seeds coated with the insecticide appear to have withstood the insect attack that may prevent entire stands from becoming established.

The insecticide spreads from the seed into the tissue of the growing plant. The insect, called the sugar beet leaf hopper, is poisoned as it sucks the plant juices and is soon prevented from transmitting the disease producing virus.

The tests are being conducted by University of California scientists on a plot in the Imperial Valley. Dr. Robert A. Flock and Dr. Harold T. Reynolds, entomologists stationed on the University's Riverside campus, are conducting the experiments.

Losses attributed to the insect-transmitted disease in Imperial County alone this year are estimated at $5,000,000 on sugar beets, flax, tomatoes, squash and other susceptible crops.

RINGING THE cash register
Merchandising Hints for The Retailer

Study of Net Profits

Feed and grain men may wish to compare their operations with the averages of five Ohio country elevator operators whose net profits were the highest of 119 plants studied in an Ohio State University survey. The highest net profits were realized by plants which had large volumes of both grain and supplies. However, these were not the largest operations, as measured in volume. The average total sales of the five plants were $1,199,062, whereas the average volume for the top volume group was $1,307,620. Volume of each of the five plants was over $1 million, however. Total dollar volume, margins and costs appear to determine net profits, the survey report shows. A few plants which had comparable dollar volumes to the select five had very small net profits and a few had losses.

Operating Statement Average for Five Ohio Elevators Handling Feed, Grain, Fertilizer and Other Farm Supplies—Highest Net Profit Group of 119 Plants Survey by Ohio University

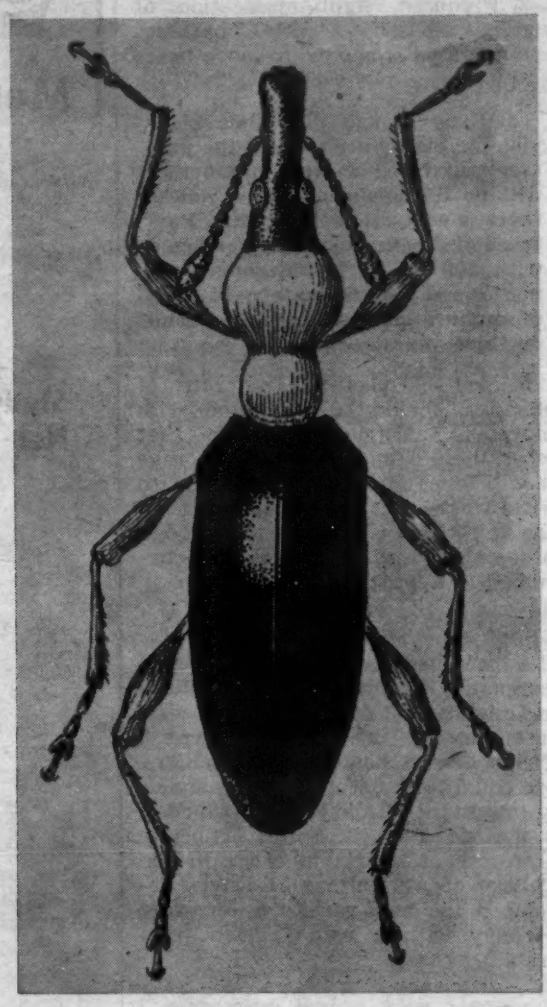
Item	Sales	Margin	% Margin
Wheat	$ 158,166	$ 7,215	4.6
Corn	300,433	9,782	3.2
Soybeans	345,590	22,998	6.7
Oats	34,867	3,240	9.3
Seed	18,131	2,379	13.1
Miscellaneous	1,389	85	6.1
Total farm product	**$ 858,576**	**$45,699**	**5.3**
Feed	$ 130,941	$16,326	12.5
Merchandise	57,980	7,491	12.9
Fertilizer	56,219	5,040	9.0
Coal	23,507	3,465	14.7
Petroleum products	34,028	6,161	18.1
Machinery and parts	15,282	4,529	29.6
Hardware	3,275	408	12.4
Fence and posts	12,733	1,842	14.5
Twine	2,050	24	0.1
Tile	690	101	14.7
Paint	1,202	237	19.7
Salt	706	143	20.3
Cement	1,872	405	21.6
Total farm supply	**$ 340,485**	**$46,172**	**13.6**
Total sales	**$1,199,061**	**$91,871**	**7.7**
Trucking	$ 2,721	$ 2,721	
Shelling, grinding	9,297	9,297	
Miscellaneous	734	734	
Cleaning, treating	117	117	
Storage	3,049	3,049	
Drying	2,196	2,196	
Shop	1,350	1,350	
			% of Sales
Total other operating	**$ 19,464**	**$ 19,464**	**1.60**
Total sales, margin	**$1,218,526**	**$111,335**	**9.14**

Item		% of Sales
Gross operating income	$111,335	9.14
Operating expense:		
Salaries and labor	$40,043	3.29
Trucking	4,150	.34
Power	2,996	.25
Plant repairs	2,645	.22
Plant supply	320	.03
Payroll tax	512	.04
County and state tax	2,042	.17
Insurance	3,332	.27
Office and postage	960	.08
Professional service	189	.02
Telephone and telegraph	406	.03
Directors' fees	207	.02
Travel and meetings	485	.04
Advertising	730	.05
Miscellaneous	526	.04
Total cash expense	$59,543	4.89
Depreciation allowed	5,759	.47
Bad debt allowance	321	.03
Total operating expense	$65,623	5.39
Net operating income	$45,712	3.75
Interest and dividends received	$ 1,456	
Patronage and discount received	5,273	
Rent received	111	
Cash adjustment	116	
Gain on asset sales	161	
Total non-operating income	$ 7,117	.58
Interest expense	$ 154	
Loss on asset sales	100	
Total non-operating expense	$ 254	.02
Net income	$52,575	4.31

BUG OF THE WEEK

Mr. Dealer—Cut out this page for your bulletin board

Sweet Potato Weevil



How to Identify

The adult insect (shown here) is about a quarter-inch in length, and is distinguished by its slender, shiny body and easily-noted snout. The bug's colors are also characteristic. The head is bluish-black, while the legs and middle portion of the insect are red in color. In the grub stage, the pest is white and about a third of an inch in length. It is legless in this stage, and usually fat appearing.

Habits of the Weevil

The sweetpotato weevil lays its eggs in small holes that it makes in the stems of sweet potato plants or directly in the potatoes themselves. In about a week, the eggs hatch into small, white grubs which feed and grow in the vines or in the potatoes. In two or three weeks, the grub reaches its full growth. While it is still in the stem or potato, the grub changes into the pupa, or resting stage in which it remains for a week or more before the weevil emerges by eating its way out.

Damage Done by Insect

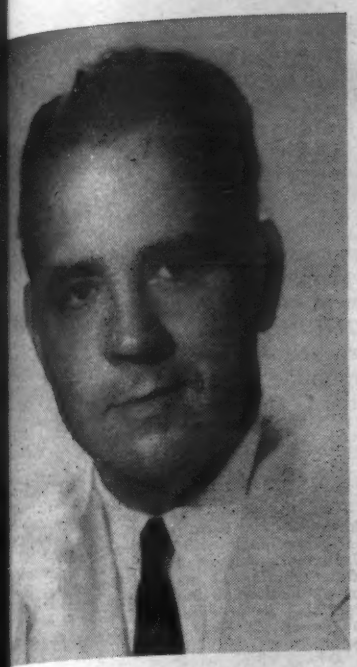
Sweetpotato weevils do tremendous damage to plants, often rendering the potato unfit for any kind of feed, human or animal. Grubs do damage by feeding within the stems, roots and potatoes. Small holes in groups on the surface of the potatoes are either feeding marks or holes made by females in laying their eggs. Roots and tubers of sweet potato plants may be honeycombed by numerous grubs which leave tunnels filled with excrement. When weevily potatoes are cut open, the grub-made tunnels can be seen, often with grubs or pupae still in them. Sweetpotatoes thus infested have a bitter taste and are totally unfit for food.

Control of Sweetpotato Weevil

Cultural practices rate high in control of this pest, but a number of pesticidal products are available to do the job. (Experiment Stations and county agents in the half-dozen or more southern states in which the weevil occurs, can provide accurate information on materials to use, amounts, and methods of application.) If infestation is light, rotation of crops will deprive the pest of its food supply for a year which is said to eradicate it. Sweetpotatoes should not be grown anywhere within an area extending from ½ mile to 1 mile from any known infestation. Destruction of plant residues on an infested field is another recommended practice. Federal and state quaranties prohibit the transfer of sweetpotatoes from an infested area.

Illustration of sweetpotato weevil furnished Croplife through courtesy of the U.S. Department of Agriculture.

Previous "Bug of the Week" features have been reprinted in attractive 24-page booklet, priced at 25¢ single copies; reduced rates in quantities. Write Croplife Reprint Dept., Box 67, Minneapolis 1, Minn.



Robert B. Patterson

NS BENNETT—Robert B. Pat-on has joined Bennett Industries, , Peotone, Ill., manufacturer of l shipping containers, as sales resentative. Except for a small around El Paso, his organization cover all of Texas from head-rters in Dallas. Mr. Patterson, is a long time resident of Dallas, had 10 years experience in the ad-tising and industrial sales field.

rvest in Full ving in Mid-South

EMPHIS—The fall harvest is in swing over most of the Mid-th.

lechanical cotton pickers, rice and bean combines and hay balers e joined thousands of farm work-in gathering this year's crops.

xtension officials in Arkansas, sissippi, Missouri and Tennessee in their weekly crop surveys that ellent progress is being made in nering the crops. They also said ding of winter cover crops and tures is under way in some areas.

armers are cutting cotton stalks soon as the fields are completely ed to destroy food for boll wee-A. G. Bennett, Mississippi ex-sion entomologist, said.

e advised that ditch banks and ded areas near cotton fields be ed out to destroy hibernating es for the boll weevils. However, emphasized these places should be burned.

Much of the ear corn now being rvested is showing weevil infesta-n, and should be treated with the dane-cottonseed hull method as on as it is put in the crib, he ded. County agents have detailed structions for using this method.

weet potato harvesting is under , and potatoes are moving on lo-markets.

With a predicted drop of around in sweet potato production for nation as a whole, price outlook avorable, said Chesley Hines, ex-sion horticulturist.

n Arkansas, adequate moisture reported for most of East Arkan-and scattered areas in other sec-s, but rain is badly needed in the and mountain areas, the federal-e crop reporting service said.

n areas where moisture is ade-te, conditions were ideal for crop vest. Good yields were reported soybeans, early corn, rice and ghum.

n West Tennessee, dry weather tinues to cause cotton to open maturely in most sections, said H. Short, district extension agent at kson.

The weather, still very dry, also reventing many farmers from the ual fall seeding of small cover ps," Mr. Short said. "Those farm-who already have done their fall ding have had very little in the of results."

TREES

(Continued from page 1)

have indicated increases in growth ranging from 40 to 65%. Current, larger-scale work is directed toward improvement of the fertilizing techniques, which in practice could lead to more abundant, cheaper wood for the pulp and paper industries, according to the Rutgers forester.

The fertilizer applied at Beemerville was a standard 12-12-12 material. A crop-dusting Stearman airplane operated by Cherry Dusting Service of Pemberton applied the material at the rate of 400 lb. an acre in a spreading time of 6 minutes.

Measurements of the fertilized trees will be made after each growing season to determine the extent of their response to the fertilizer. Other experiments have shown that well fertilized trees are greener, have longer needles and are more healthy in general than trees growing without sufficient plant food.

Recently expanded pulp and paper production facilities are expected to put an even heavier drain on the southeastern pine forests which now provide the bulk of pulpwood. Fertilization of these stands is expected to provide the key to greater volume as it did to agricultural crop production.

TREE FERTILIZATION—Shown above is the aerial application of a complete fertilizer to forest trees. A Stearman crop-dusting plane is applying 12-12-12 fertilizer at the rate of 400 lb. an acre at the Rutgers University dairy research farm at Beemerville.

Industry Patents and Trademarks

2,760,848. Manufacture of Sulfur. Patent issued Aug. 28, 1956, to Herbert N. Dunning, Bartlesville, Okla., assignor to Standard Oil Co., Chicago, Ill. A process which comprises contacting a gaseous stream comprising hydrogen sulfide and hydrocarbons with a catalyst consisting essentially of an intimate mixture of a metal hydroxide selected from the group consisting of sodium and potassium and a metal oxide selected from the group consisting of magnesium, calcium and barium at a temperature of about 400° to 1200° F., in the presence of an oxidizing agent selected from the group consisting of free-oxygen and sulfur dioxide, wherein said oxidizing agent is employed in an amount between about 0.05 to 0.75 mol per mol of hydrogen sulfide contained in said gaseous stream.

2,760,854. Defoliation of Plants. Patent issued Aug. 28, 1956, to William A. LaLande, Jr., Plymouth Meeting, Pa., assignor to Pennsylvania Salt Mfg. Co., Philadelphia. The method of non-phytocidal defoliation of plants which comprises applying a soluble chromate to the plant foliage in which the rate of application ranges from the equivalent of 2 lb. an acre to the equivalent of 20 lb. an acre, calculated on the basis of a field of plants spaced at normal intervals.

2,760,900. Stabilized Chlorinated Pesticidal Compositions. Patent issued Aug. 28, 1956, to Harry D. Glenn and Robert J. Dowling, Naugatuck, Conn., assignors to U.S. Rubber Co., New York. A pesticidal composition comprising a powdered mineral silicate, the solids of the alkaline effluent from the fractional precipitation treatment of waste sulfite liquor in wood pulp manufacture with caustic lime which contain the salts of the modified carbohydrate constituents formed by the hydrolysis of the hemicelluloses in the original wood in the form of salts selected from the group consisting of sodium and calcium and mixed sodium-calcium salts, and, as an active ingredient, a pesticide which is an organic compound having chlorine substitution in an aliphatic group.

2,760,995. Refinement of Benzene Hexachloride. Patent issued Aug. 28, 1956, to Hoyt J. Cragg and James H. Dunn, Baton Rouge, La., assignors to Ethyl Corp., New York. In a process for the production of a product containing an enhanced proportion of gamma benzene hexachloride by partially dissolving crude benzene hexachloride in a lower aliphatic alcohol, separating the thereby-formed solution from the undissolved solids, and crystallizing a product containing an enhanced proportion of gamma benzene hexachloride from said solution, the improvement comprising recycling a portion of the mother liquor from said crystallization step to said partial dissolution step, the portion recycled having essentially the same composition as the whole quantity of the mother liquor.

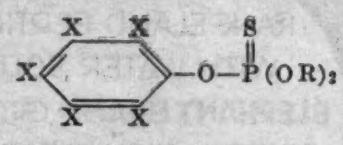
2,761,773. Herbicidal Compositions. Patent issued Sept. 4, 1956, to William R. Davie, Aliquippa, Pa., assignor to Pittsburgh Coke & Chemical Co., Pittsburgh. As a new herbicidal mixture of esters, the mixture of esters of an aryloxyacetic acid selected from the group consisting of phenoxyacetic acid, 2-methylphenoxyacetic acid, naphthoxyacetic acid and halogenated derivatives thereof, with a mixture comprising primary saturated decyl alcohols containing a major proportion of trimethyl heptanols said mixture including substantial amounts of a plurality of the trimethyl heptanols.

2,761,774. Low Volatility Herbicidal Compositions. Patent issued Sept. 4, 1956, to Wm. R. Davie, Aliquippa, Pa., assignor to Pittsburgh Coke & Chemical Co., Pittsburgh, Pa. As a new herbicidal mixture of esters, the mixture of esters of an aryloxyacetic acid selected from the group consisting of phenoxyacetic acid, 2-methylphenoxyacetic acid, naphthoxyacetic acid and halogenated derivatives thereof, with a mixture comprising primary normal saturated C_7, C_8 and C_9 alcohols and the 2-methyl isomers thereof said mixture including substantial amounts of each of the C_7, C_8 and C_9 alcohols.

2,761,775. Process for Defluorinating Phosphate Solutions. Patent issued Sept. 4, 1956, to Ira M. LeBaron, Evanston, Ill., assignor to International Minerals & Chemical Corp. The method of defluorinating phosphate solutions containing fluorine and at least about 12.3% P_2O_5 content by weight which comprises reacting with said solution a porous calcarenite-type limestone, there being employed for each 100 parts by weight of said solution from about 3 to about 8 parts by weight of said limestone to produce a fluorine-rich precipitate and a mother liquor from which the phosphate constituents can be recovered as dicalcium phosphate having a fluorine content of less than 0.1% by weight, and separating said precipitate from said mother liquor.

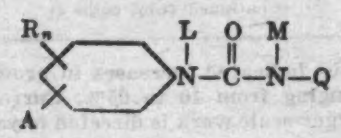
2,761,805. Synergistic Insecticidal Compositions of Benzene Hexachloride and a Terpene Hydrocarbon. Patent issued Sept. 4, 1956, to Pedro Marron Huidobro and Juan Nebrera Escobar, Madrid, Spain. An insecticidal composition consisting essentially of benzene hexachloride which has been crystallized from petroleum hydrocarbon, then saturated with but not dissolved in terpene hydrocarbon corresponding to the formula $C_{10}H_{16}$, and then exposed to the oxidizing action of atmospheric oxygen, and an insecticide carrier, said terpene hydrocarbon having been obtained by treating essence of turpentine with sulfuric acid, removing tars and impurities, and neutralizing the so-obtained terpene hydrocarbon.

2,761,806. Method of Controlling Nematodes in the Soil. Patent issued Sept. 4, 1956, to William P. Boyer, Chesterfield County, Va., assignor to Virginia-Carolina Chemical Corp., Richmond, Va. The method of controlling nematodes in the soil which comprises applying thereto a compound of the general formula:



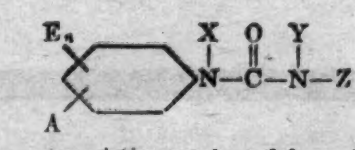
in which R is an alkyl group containing from 1 to 4 carbon atoms, at least one X and not more than four X's are chlorine and one X is a member of the group consisting of hydrogen and the methyl group.

2,762,695. N-(Carbamyl) Amide Herbicides. Patent issued Sept. 11, 1956, to Henry J. Gerjovich, Wilmington, and Rayner S. Johnson, New Castle, Del., assignors to E. I. duPont de Nemours & Co., Wilmington, Del. An N-(carbamyl) amide represented by the formula:



where A and R are selected from the group consisting of hydrogen, halogen, and alkyl of less than 5 carbon atoms, n is a positive integer less than 3, L, M, and Q are selected from the group of monovalent radicals consisting of hydrogen, formyl, and aliphatic hydrocarbon of less than 5 carbon atoms, with the proviso that one and only one of L, M, and Q is formyl and at least one but not more than two of L, M, and Q is an aliphatic hydrocarbon radical.

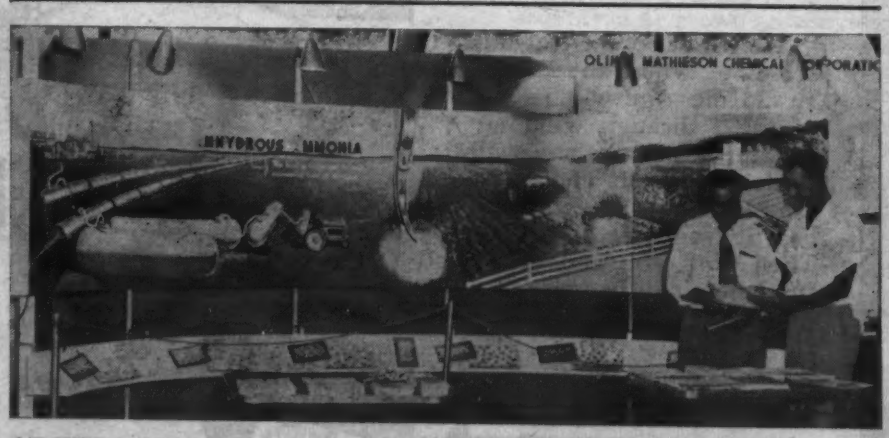
2,762,696. N-(Carbamyl) Amide Herbicides. Patent issued Sept. 11, 1956, to Henry J. Gerjovich, Wilmington, and Rayner S. Johnson, New Castle, Del., assignors to E. I. duPont de Nemours & Co., Wilmington, Del. An N-(carbamyl) amide represented by the formula:



where A and E are selected from the group consisting of hydrogen, halogen, and alkyl of less than 5 carbon atoms, n is a positive integer less than 3, and X, Y, and Z are selected from the group of monovalent radicals consisting of hydrogen, acetyl, and aliphatic hydrocarbon of less than 5 carbon atoms, with the proviso that one and only one of X, Y, and Z is acetyl, at least one but not more than two of X, Y, and Z is an aliphatic hydrocarbon radical, and the sum of the carbon atoms in Y and Z is less than four.

2,762,698. Fertilizer Manufacture and Uranium Recovery. Patent issued Sept. 11, 1956, to Marion D. Barnes, El Dorado, Ark., assignor to Monsanto Chemical Co., St. Louis, Mo. Process of preparing soluble phosphatic materials, which comprises fusing calcium-phosphorus containing material and a portion of said soluble phosphatic materials produced by said process, removing orthophosphatic material from the resulting melt, reacting the melt with aqueous ammonium carbonate, filtering out the calcium carbonate produced, evaporating the filtrate to separate out the soluble phosphatic materials thus produced as product and recycling a portion of said product to the fusion step.

2,762,699. Process for the Production of Ammonium Sulfate-Nitrate. Patent issued Sept. 11, 1956, to Walter Steinle, Wanne-Eickel, and Fritz Exner, Herne, Germany, assignors to Bergwerksgesellschaft Hibernia Akitengesellschaft, Wanne-Eickel, Germany. A process for the continuous manufacture of ammonium sulphate-nitrate, a double salt having the formula $(NH_4)_2SO_4 \cdot 2NH_4NO_3$, comprising the steps of (1) neutralizing a known quantity of dilute nitric acid with ammonia-containing vapors in s atmospheric pressure, (2) remov the steam formed by the heat of action from the resulting conc trated ammonium nitrate soluti (3) reacting said concentrated a monium nitrate solution with a qu tity of sulfuric acid equal to the qu tity of said dilute nitric acid and excess of ammonia gas necessary completely neutralize said sulfu acid, (4) removing the $(NH_4)_2SO$ $2NH_4NO_3$ reaction product and recycling back to step (1) the a monia-containing vapors evolved the heat of reaction of step (3).



AT THE FAIR—The Ohio Anhydrous Ammonia Assn. was a prominent participant in the Ohio State Fair at Columbus late in August. With this booth set up in cooperation with Olin Mathieson Chemical Corp., Charles Wood, manager of anhydrous ammonia sales for Mathieson, right, discusses the rapid increase in nitrogen sales in Ohio with a visitor, W. W. Smelker, Dempster Mill Mfg. Co., Beatrice, Neb.

Industry Trade Marks

The following trade marks were publish in the Official Gazette of the U.S. Patent Off in compliance with section 12 (a) of Trademark Act of 1946. Notice of opposit under section 13 may be filed within 30 d of publication in the Gazette. (See Rules 2 to 20.5.) As provided by Section 31 of the a a fee of $25 must accompany each notice opposition.

Trademarks described below were publish in the Aug. 28, 1956, issue of the Offic Gazette, U.S. Patent Office:

Kromad, in capital letters, for tu fungicide. Filed June 17, 1955, b Mallinckrodt Chemical Works, S Louis, Mo. First use June 7, 1955.

T-H Chemical Co., Quality, Servic In shield design with the "T-H" capital letters within a circle, f herbicides, insecticides, fungicide rodenticides, fumigants and disi fectants. Filed Dec. 1, 1955, b Thompson-Hayward Chemical C Kansas City, Mo. First use, Marc 1933.

Nitroform, in capital letters, f synthetic organic water-insoluble n trogen compound designed primari for predetermined nitrogen releas values in crop raising. Filed Aug. 2 1955, by Woonsocket Color & Chem cal Co., Woonsocket, R.I. First u on or about Sept. 28, 1954.

Trade marks described below were publish in the Sept. 4, 1956, issue of the Offic Gazette, U.S. Patent Office.

Picture of beef animal rubbi against insecticide-applying devic For insecticide. Filed June 10, 195 by Tatge Chemical Co., Herington Kansas. First use, Oct. 23, 1954.

Emjeo, in hand-lettered caps an lower case, for fertilizer materia Filed Mar. 23, 1956, by F. W. Ber & Co., Inc., Woodridge, N.J. First us Mar. 4, 1935.

Flo-lizer, in hand-lettered scrip for liquid fertilizers. Filed Mar. 2 1956, by Flo-Lizer, Inc., Kingsto Ohio. First use Mar. 2, 1956.

Start-Rite, in capital letters, f organic plant and soil conditione Filed Mar. 30, 1956, by Soil Boost Corp., Oklahoma City, Okla. First us March, 1955.

Picture of cat, with back arche For fertilizer. Filed June 7, 1956, b Minden Cotton Oil and Ice Co., Lt Minden, La. First use, Novembe 1946.

Trade marks described below were publish in the Sept. 11, 1956, issue of the Offic Gazette, U.S. Patent Office.

Vanaj, in caps and lower case le ters, for additive to agricultur sprays to improve suspension, d crease settling, prolong adheren and increase coverage. Filed Nov. 1 1955, by R. T. Vanderbilt Co., In New York. First use Sept. 23, 1955

Velvetone, in slender capital le ters, for fertilizers for lawns a lawn conditioners. Filed Oct. 1, 195 by International Toxin Products, Lt Northwich, England.

Vitalizer, in "L" shape design, wi letters "vital" in vertical form, f commercial fertilizer. Filed Aug. 1 1955, by the Alunite Corporation Utah, Salt Lake City. First use Ap 15, 1955.

ENTOMOLOGY APPOINTMENT

NEW HAVEN, CONN. — Appoi ment of Charles C. Doane to the d partment of entomology staff at t Connecticut Agricultural Experime Station has been announced by Jam G. Horsfall, director. Dr. Doane w study biology and control of the e bark beetle and will conduct resear on other pests of woodland trees a their environment.

WORLD REPORT

By GEORGE E. SWARBRECK
Croplife Canadian and Overseas Editor

kistani Plant

Pakistani engineer who was sent his government, in conjunction h the U.S. International Coopera- Administration, to study am- nium sulfate production in the ., Belgium and France is working a new Pakistani installation which expected to come into operation r this year.

The engineer is M. A. Latif and says that his one-year tour gave m an excellent knowledge of the oduction techniques used in the reign ammonium sulfate industry.

The factory is being built at udkhel by the Pakistan-American tilizer Co. and capacity is expect- to be 50,000 tons of ammonium fate a year plus 40 tons of am- nia a day. Mr. Latif says the fac- y's output will be more than bled if natural gas, as a source of drogen, can be utilized.

ctrostatic Dusting

A method of electrostatic crop dust- which the makers claim will give m four to ten times the effective- s of conventional methods has n developed by a British firm. It ncorporated in a machine that can carried and operated by two men.

The basic principle of the ma- ine—known as the Agricola Elec- oduster—is that the dust passes rough a probe charged with a ry high positive potential in such way that each dust particle is ven a positive charge of ions.

When the particles approach the face of the plant, an equal and posite charge is induced behind the nt, drawing the dust to it. As the ject being sprayed now has a nega- e charge, the dust is held to the face. And, since like forces repel, particles are evenly distributed. st is deposited in almost equal antities on upper and lower sur- ces.

While the theoretical basis of the thod is by no means new, the kers say that the evolution of "an onomic and self-contained field it" of this type is a major ad- nce. It is also claimed that the achine saves the user 50% of his tlay on chemicals.

The electroduster has a 2 h.p. gine of lightweight design, fitted th a high powered radial blower, st proofed with sound absorbing ffler. The hopper holds about 40 , according to the type of dust used. e machine weighs 84 lb.

otope Experiments

Experiments with radioactive iso- es have been undertaken at the estern Cape Fruit Research Station Stellenbosch, South Africa.

Dr. P. G. Marais of the station s: "These experiments may save rmers a lot of money through the proved use of fertilizers."

South African soil is deficient in hosphorous and expenditure on hosphate fertilizers is in the region f $18 million a year, Dr. Marais xplains. It is important that these ertilizers be used efficiently; farm- rs need to know at what depth hey should be applied, and what ethod should be used.

Dr. Marais, amplifying his point, s: "If the wrong method is used e plant may not be able to reach e phosphorous, since phosphorous oves very little through the soil, rely more than an inch. In the past it has been difficult to investigate the uptake of phosphorous from fertilizers because there has been no way of distinguishing between phosphorous taken up from fertilizer and that taken up from the soil. The method now being used is to make phosphate fertilizer radioactive before adding it to the soil."

If a Geiger counter showed that there was radioactive material in the leaves or branches of a tree, then it was certain that the tree was taking up phosphorous from the fertilizer. It is also possible, Dr. Marais suggests, to determine how much phosphorous is being taken up.

Spanish Factory

Plans are being discussed for the erection of a nitrogenous fertilizer plant at Seville, Spain. Two companies, Union Espanola de Explosives and Sociedad Iberica del Nitrogeno have applied to the government for the necessary authority.

Capacities would be 25,000 tons of nitrogen, 30,000 tons of phosphoric anhydride and 25,000 tons of potash for the manufacture of nitrogenous fertilizers, urea, superphosphate and any other materials the authorities may wish. The sponsors have asked that the installation be declared of "national interest." If this is granted, then the company will be allowed to expropriate land, be exempted from paying duty on imported machinery and will get a rebate of 50% on all imposts.

Soviet Fertilizers

The impact of last year's tour of U.S. farms by a Russian agricultural delegation is now beginning to show up in Soviet agriculture, according to the U.S. Department of Agriculture.

USDA comments that some scepticism was shown with regard to chemical fertilizers by the Russians while in the U.S. Would these chemically produced materials increase crops at home, they wondered. But perhaps this question stemmed, it is suggested, from the realization that Russian commercial fertilizer output is but a small percentage of U.S. production. In a country the size of USSR, even partial application of chemical fertilizers would require considerable expansion of the industry.

Zonolite Appoints Richard G. Hartman To Sales Staff

CHICAGO — Richard G. Hartman, 26, has been appointed sales representative for the Zonolite Co., covering the territory of southwestern Ohio, southwestern West Virginia, eastern Kentucky and several counties in Southern Indiana.

Mr. Hartman joined the firm originally in September, 1949, as shipping clerk in the Wilder, Ky. plant. He served in the navy from 1951 to 1955, and then re-joined Zonolite Co. He will contact hardware and retail seed outlets, fertilizer companies, golf courses and chemical concerns in his territory concerning agricultural and horticultural applications for vermiculite, which the firm mines and manufactures, under the trade name Terra-Lite.

SHORT COURSES

NEW BRUNSWICK, N.J.—Two 10-week agricultural courses at Rutgers University which deal with turf management and landscape maintenance will begin Oct. 15.

IMC Net Sales Reach New Record High in 1955-56

CHICAGO—International Minerals & Chemical Corp.'s net earnings after taxes for the fourth quarter of its fiscal year ended June 30, 1956, were $2,371,483, equivalent to 97¢ a share on the common stock outstanding at June 30, 1956. These earnings were 23% higher than the net earnings for the fourth quarter of the previous fiscal year of $1,934,591, or 79¢ a share on the shares of common stock then outstanding.

Net sales of the corporation for the fourth quarter ended June 30, 1956, amounted to $30,422,955, an increase of 12% over $27,096,753 for the fourth quarter of the previous year.

Net sales of the corporation for the fiscal year ended June 30, 1956, were $96,626,799, a slight increase over the previous all-time high of $96,485,017 for the preceding fiscal year.

Net earnings after taxes for the fiscal year ended June 30, 1956, totaled $5,401,723, equal to $2.14 per share of common stock, compared with $6,321,903 for the previous fiscal year, or $2.55 per share of common stock then outstanding.

In the corporation's annual report for the fiscal year ended June 30, 1956, which was released Sept. 18, Louis Ware, president, stated that the year was an abnormal one for the corporation, primarily because of the industry-wide strike in the Florida phosphate fields which began June 1, 1955, and continued through the entire first quarter ended September 30, 1955.

He added that other factors which affected the corporation's operations were uncertainties regarding agricultural legislation, lower farm income and a late spring in important farm areas.

Commenting upon the current fiscal year, Mr. Ware said that with settled labor conditions and most of the burden of new plant start-up expense finished, there is a favorable opportunity in the coming year for resumption of the upward trend of sales and profits.

Sales and profits of the potash division in 1955-56 were higher than those of a year earlier, and all division plants operated at capacity, according to the annual report.

In the plant food division, sales and profits reflected the unfavorable year in the fertilizer industry, the report stated.

During the year, the firm's plant food factory in Winston-Salem, N.C. was substantially expanded, a plant in Wilmington, N.C. was closed and plans were approved to construct a plant at Fairfax, Minn. Granulation units were installed at the Chicago Heights, Ill. and Texarkana, Ark. plants, the report stated.

Tom E. Martin

U.S.I. APPOINTMENT — Tom E. Martin has been appointed field service engineer for U.S.I.'s chemical sales department, it has been announced by L. A. Keane, vice president in charge of sales for U.S. Industrial Chemicals Co., division of National Distillers Products Corp. Mr. Martin, who holds a B.S. degree in chemical engineering, for four years has been director of the engineering service division of Snyder Chemical Co., Topeka, Kansas. Previous to that he had been employed by Phillips Petroleum Co., and other major chemical concerns. Mr. Martin will be located in the Midwest near U.S.I.'s Tuscola, Ill. plant.

ACS PAPERS

(Continued from page 1)

ter-Haller method with improved isolation and nitration techniques," the paper said.

"The major reason for such low recoveries is now apparent," they said. "Exhaustive extraction with the common solvents under acidic conditions will recover only from 75% to 80% of the total DDT-derived products present in feces. The nonextractable material will not respond to the Schechter-Haller method."

However, the paper continued, using carbon-14-labeled DDT, better than 80% of orally ingested doses was accounted for in the feces by radioassay, whereas only about 60% was found in the best Schechter-Haller procedure developed. "The study has clearly shown that the DDT-derived products in rat feces are highly complex and cannot be studied quantitatively with the Schechter-Haller method alone."

A study of DDT-derived materials in the bile of rats was the topic covered in another paper by Messrs. Jensen, Dale and Pearce. They reported that after a study of DDT-derived material occurring in the bile of rats fed carbon-14-labeled DDT, 15% of the total radioactive material found in the bile is not extractable with ether and only about 30% of this responds to the Schechter-Haller method. The ether-extracted derivatives exhibited only 60% response to the S-H method. These materials have been traced quantitatively through the S-H procedure by radioassays.

"Thirty per cent of the total radioactivity appears in the alkali washings of the benzene solution of the nitrated products," the paper said. "This 30% will not give a S-H color if recovered from the alkali. Furthermore, this material will not respond to the S-H method after renitration. All S-H positive materials found in bile give a red color.

"No evidence for DDT or a blue S-H positive material was found. All the ether-extractable materials were acidic, but only a small portion appears to be DDA. Chromatographic studies indicate the acidic materials are a mixture of complexes which are red S-H positive but do not respond quantitatively."

The last of these four papers dealt with the fate of DDT and DDT-derived materials in the blood of the rodent. This study, conducted by A. M. Mattson and R. M. Neuslein, revealed that analyses of blood from rats fed 200 and 400 parts per million of DDT in their diet, have shown the presence of DDT and red Schechter-Haller positive products in the plasma and serum with no measurable amounts associated with the formed bodies.

"A satisfactory method of isolation of DDT and its derived products from rat plasma and serum in preparation for estimation by the Schechter-Haller method was provided by precipitating the proteins in alcohol-ether mixtures," they reported. "No measurable amounts of the sought materials were carried down by the precipitated protein. Both acidic and neutral DDT degradation products were found in these samples. Studies of the concentration of these materials in the plasma following single oral dosages have shown that degradation products appear quickly but that their nature probably changes with time."

A technical description of an organophosphate pesticide, known as "Stauffer Experimental Compound R-1303," was presented in a paper prepared by L. W. Fancher and G. G. Patchett, Richmond Research Center, Richmond, Calif. and S. C. Dorman, Stauffer Chemical Co., agricultural laboratory, Mountain View, Calif. Their work covered methods of synthesis of the compound as well as analytical procedures used for determining it in or on raw agricultural commodities.

Biological data presented indicated that the compound is effective against specific insects and mite species.

A research team from Naugatuck Chemical Div., U.S. Rubber Co., reported on the mobility of Alanap—1 in soil, pointing out that the herbicide is moderately susceptible to leaching in spite of its low water solubility. The authors, Allen E. Smith and Gracie M. Stone, said that some mobility in soil is desirable to assure distribution throughout the weed-producing soil layer. "For certain uses, however," they said, "it is advantageous to limit the downward movement of the chemical in soil in heavy rainfall areas. This prolongs the residual herbicidal effect and decreases chances of injuring deep-planted seeds of semisensitive crops."

They reported having developed a simple chemical technique to study factors affecting the mobility of the phthalamic acid in soil. The data obtained suggest that leaching is due to ionization. Cation exchange substances of the soil have high affinity for protons even in moderately acidic soils. Any binding of protons by the soil leads to the formation of more phthalamate ions which move freely with soil water.

"According to this theory," the authors said, "the soil mobility of Alanap should be decreased by using a nonionizing derivative, such as esters, or by formulating with substances furnishing cations for which the soil has high affinity. Both approaches have been found effective," they concluded.

The pesticide subdivision continued in subsequent sessions with a number of technical papers being presented. These covered methods of determining residues on various foods, and other laboratory procedures in measuring the presence of pesticides.

One paper discussed the "In Vitro Destruction of Some Organophosphate Pesticides by Bovine Rumen Fluid." This paper, by J. W. Cook of the food division of the Food and Drug Administration, reported that parathion, paraoxon, chlorothion, and the thiono isomer of Systox almost completely disappeared in one hour when added, at the rate of 100 ppm, to the rumen fluid of two cows, one of which had been fed on a high grain diet and the other on a high alfalfa diet.

"The residue that remained after various intervals was measured by anticholinesterase activity and by paper chromatography," the author said. "In addition to these rapid changes, EPN and malathion disappeared and OS 2046 diminished somewhat in 24 hours at 37° when added to fluid from the alfalfa-fed cow," he went on. "There appeared to be no measurable change in the quantity of added diazinon, Dipterex, Compound 528, and the thiol isomer of Systex, subjected to the fluid for 24 hours."

A study of selective toxicity in organophosphorus insecticides was presented in a paper by John E. Casida, University of Wisconsin, Madison. He said that organophosphate esters may be general poisons or very selective in their toxicity. "One of the most generally toxic of these, O,O-diethyl p-nitrophenyl phosphate, still varied in median lethal dosage by a factor of 50 when tested against 27 widely varying insect species," he said. "Fifteen organophosphates selected for marked divergence in functional groupings showed a tremendous difference in specificity patterns when assayed against six insect species and rats.

"The most resistant forms tested were the larvae of the black carpet beetle and the most susceptible were pea aphids. Some compounds were over 100 times more toxic to most insects tested than to rats, while others were about 80 times more toxic to rats than to most of the insects.

"Penetration into and distribution within the organism did not appear to be a major factor in conferring specificity. Those compounds which were biologically unstable to hydrolysis or oxidation appeared to be more selective in their poisoning. Detoxification through ester hydrolysis and 'intoxification' through oxidation of amide nitrogen and mercaptyl and thiono sulfurs are important factors in selectivity.

"Differences in the substrate and inhibitor specificity for the cholinesterase of the various animals may well play an important part in organophosphate specificity in poisoning," it was pointed out. "The relation of structure to toxicity and anticholinesterase activity varies greatly among the insects, possibly because of differences in esterase specificity and the metabolism of the organophosphates."

IRRIGATED COTTON

(Continued from page 1)

gations. In each irrigation treatment, three levels of nitrogen application were used—60, 150, and 375 lb. per acre.

When the wet irrigation treatment was combined with a 60-lb. application of nitrogen, seed cotton yield was only 1,390 lb. per acre. Yields were nearly that high with dry and medium irrigation treatments when 60 lb. of nitrogen was applied. But increasing the nitrogen rate to 150 lb. raised yields by about 400 lb. under all three irrigation treatments. In each instance, nitrogen was the limiting production factor.

The highest yield obtained in these tests—2,670 lb. per acre—was from a combination of the wet treatment with application of 375 lb. of nitrogen. With this amount of added nitrogen, a stepwise increase of seed cotton yields occurred as irrigation was increased.

Similar results occurred in other areas of the U.S. on different soils but under similar climatic conditions. At Brawley, Cal., for example, yields up to 3.65 bales of cotton per acre were obtained when adequate plant nutrients were supplied and high moisture level was maintained with 17 irrigations. Under a medium treatment (10 irrigations) and a "dry" treatment (8 irrigations), yields were 2.66 and 1.80 bales per acre, respectively. The extra bale obtained with 7 additional irrigations is considered profitable—i.e., worth the fertilizer and extra irrigation—in that area.

Here are other test findings:

Ample moisture supplies are needed early in the season to stimulate plant growth. Pre-planting irrigations to provide a full reservoir of soil moisture are usually recommended. Maintenance of continual growth, at least until the bolls have set, is good irrigation practice. However, late irrigations after the bolls have set often stimulate new vegetative growth with no yield benefits, and the extra growth can interfere with harvesting.

Kansas Sales Show Decline in 1955-56

TOPEKA, KANSAS—Fertilizer sales in Kansas for the fiscal year ended last June 30 totaled 203,168 tons, compared with 233,604 tons the previous fiscal year.

The 1955-56 total included 38,423 tons of ammonium nitrate, 34,376 tons of 30% and over superphosphate, 26,225 tons of 16-20-0, 21,208 tons of 8-24-8, 13,655 tons of 10-20-0 and 8,240 tons of anhydrous ammonia.

Dr. William L. Garman

Dr. William L. Garman Named Vice President Of Best Fertilizers Co.

OAKLAND, CAL.—Lowell W. B... ry, president of the Best Fertiliz... Co., Oakland, has announced the ... pointment of Dr. William L. Garm... as vice president in charge of ... agricultural chemicals division. ... Garman took over this work start... Sept. 20, and is residing in Modes... with offices at the company's pl... at Lathrop.

Dr. Garman was formerly agric... tural service manager for the Gra... River chemical division of Deere ... Co., Tulsa. In this work he direc... the agricultural services and sa... promotional work in connection w... that company's new ammonia ... urea plants.

For five years previous to his ... pointment with Deere & Co., Dr. G... man served in the agronomy depa... ment at Cornell University, Itha... N.Y. Later he completed advanc... studies at Ohio State University ... obtained his Ph.D. degree in soil f... tility and soil chemistry.

He was born in Wagoner, Okl... and was graduated from Oklaho... A&M College in 1939. Followi... graduation, he worked as a soil s... veyor for the Soil Conservation Se... ice in Texas and Arkansas. Duri... World War II he served as a capt... in the Air Force, flying 55 comb... missions in the South Pacific.

He has contributed numerous ar... cles and bulletins on agricultural su... jects to scientific and general ag... cultural publications. He recently ... vised the second edition of the te... book "Using and Managing Soils" ... the late A. F. Gustafson of Corn... University.

Dr. Garman will be ably assisted ... his new work by A. B. Horner, sa... manager and C. W. Peterson of Tra... Regional sales managers for the co... pany are Harlan Diedrichsen, Arr... Grande; Weir Fetters, Stockton; E... win Hughes, Fresno; Robert McKe... Bakersfield; Kenneth Nelson, W... Sacramento; Ted Pringle, Marysvil... Carlo Simoni, Visalia; Gunner S... deno, Hollister; Carl Spiva, Merce... Cliff Warfield, San Jose, and Rob... Trescott, Anaheim.

Best Fertilizers products are d... tributed throughout California w... some movement in Oregon, Neva... Arizona and into the export marke... Production is at the company pl... at Lathrop, Cal., with Al Roec... plant manager, in charge.

Nichols Open House

OKLAHOMA CITY—Open house ... the new and enlarged plant of ... Nichols Fertilizer & Chemicals ... near here was held recently. E... Nichols said that about $250,000 ... been spent in expanding the pla... which was built new about th... years ago and acquired by Nichol... year ago.

NEW ENGLAND CONFERENCE

(Continued from page 1)

inistrator, Boston; A. F. Heald, administrative officer, Vermont cultural Stabilization and Conation office, USDA; and Louis ster, director, division of mar- Massachusetts State Depart- of Agriculture, Boston.

Mr. Zehner, in introducing the el, pictured the New England icultural economy as being lthy and vigorous, despite a mber of factors apparently work- against it. "We cannot forget fact that New England is a leit area," he said. "We are dly losing acreages to new high- ys, urban expansion, housing de- lopments, etc.," he said, but point- out that at the same time the a is seeing an orderly growth in agricultural economy. "Our agri- ture is not decadent," he em- sized.

r. Zehner predicted an economic eau ahead, although the line will be a level one. Instead, it will bably be an undulating one with e ups and downs, but certainly not drastic type of changes of the racter that knocked the props n under agriculture in the 30's.

r. Heald urged the fertilizer in- ry to study the farm programs g carried out by the federal gov- ment, pointing out that the story t be relayed to farmers. The fer- er industry, being both banker adviser to the farmer, can per- n a real service in this regard, it emphasized. The many programs, uding extension, research, 4-H, lit agencies and others each has lace and an influence on farm ple, he said.

r. Heald discussed at length de- s of the agricultural conservation gram and the soil bank, pointing that these projects can have a or effect on fertilizer sales, since y millions of dollars are to be into such programs by the gov- ment.

One portion of the program could ll mean the purchase of addi- nal tonnages of fertilizer, he said, l that is the tree fertilization ect of conservation. This would a long-term program, but was n by Mr. Heald to hold good tentialities.

r. Aplin emphasized in his talk although the number of farm s is shrinking, this does not mean adence in agriculture. As an ex- ple, he reported that although the nber of milk suppliers for the city Boston had decreased by 20% in past several years, the quantity milk had more than doubled. He nted out that this raises standards living, since when persons leave farm, they engage in other enter- ses that make living better.

he increasing cost of labor has n a major force in this direction, emphasized. Farmers have had to chanize and take advantage of er time and labor-saving devices offset these costs. Not only the d man must produce more to ke the farm profitable, he said, also the farmer himself cannot pete if he tries to plod along on and-labor scale in competition other growers who have lowered costs.

hat a real opportunity for ferti- r sales rests in the dairy indus- was pointed out by Mr. Aplin. reported that a survey of 560 rmont farms revealed that larger ms used significantly larger ounts of fertilizer materials per e than did the smaller ones. ce the trend is toward much ger units, this offers a favorable nd for sales, he said.

r. Webster said that his view of future of New England's agricul- is entirely optimistic, particularly in the dairy industry where better herds produce better milk and create greater prosperity.

Agriculture needs more and more promotion, he asserted. It must keep alert to changing conditions and find new markets. He cited one company whose sales of fertilizers and agricultural sprays to "back yard gardeners" in a large housing development on Long Island had amounted to more than the tonnages used by farmers when the area was formerly in potato land.

A question - and - answer period followed. It was re-emphasized here again, that heavy pressure is on the high-cost operators, and the farmer who fails to cut his costs is in for difficult times. The way to reduce unit costs, it was pointed out, is to apply optimum amounts of fertilizers.

An arithmetical look into the situation was pointed out by Mr. Zehner during the questioning period. He said that New England dairy farms use about 50 million plant food units, for about a million animal units. This equals 50 plant food units per animal, and since there are two acres per animal, this leaves 25 units of plant food an acre. This indicates clearly the need for heavier applications of plant food throughout the area.

It was also reported that recent surveys show 10% of New England's farmers using no fertilizer, and another 20% very little. These growers are likely to be out of the picture shortly, due to the pressures of economics, and their land operated by more astute farmers. This, it was stated, will result in a considerable increase in the use of fertilizer.

The Wednesday afternoon session was presided over by Prof. Wm. Henry, of the department of agricultural economics, University of New Hampshire, Durham, in the absence of Roy L. Donahue, chairman of the department of agronomy, who could not be present.

Theme of this session was "Effects of Fertilizer Usage on Cost of Producing Farm Products," with three speakers developing the topic. Using charts and blackboard displays, the economics of fertilizer uses were outlined and discussed.

W. Keith Burkett, associate agricultural economist, University of New Hampshire, pointed out the different kinds of costs faced by the farmer in producing his crops. Fixed costs, he said, remain about the same, and when fertilizers are added in adequate amounts, the increased yields far more than offset the small additional cost of the plant food. When unit costs are thus lowered, he declared, higher profits will be realized by the grower.

F. S. Prince, agronomist at the University of New Hampshire, continued by reporting the results of tests made on alfalfa in his state. He presented charts showing the economics of fertilizer application and indicating that the use of optimum amounts of plant food will increase not only extra tonnages and bushels of yield, but also net gains out of proportion to the amounts spent for additional plant food. His figures showed that combinations of manure and lime, in addition to complete fertilizer mixtures, brought the most profitable results in the New England experiments.

The afternoon's discussion was completed by a correlation of the relationship of fertilizer application with the number of days that a herd of cows can live on pasture lands and milk production from herds grazed on fertilized and unfertilized lands. The final speaker on this portion of the program was George E. Frick, agricultural economist, Production Economics Branch, ARS, USDA.

He compared two nearly identical farms on one of which generous amounts of fertilizer were applied, and the other on which practically none was used. After all costs were taken in consideration, the farm which had used 6.7 tons of fertilizer (as against 2.9 tons on the other farm) realized a net income $870 greater than the lower fertilizer rate farm.

A hospitality hour, sponsored by the National Plant Food Institute was held in the evening, followed by the annual banquet. Walter E. Meeken, Consolidated Rendering Co., Boston, was toastmaster at the event.

Frank Atwood, farm director of radio station WTIC, Hartford, Conn., told the group about opportunities for youth in New England agriculture, pointing out that although land costs are high and the amount of capital necessary to set one's self up in farming, almost prohibitive, there are still means for young men to get started in the farming profession. He told of numerous incidents where ambitious young men were able to get started through the assistance of farmers and others. These young men, he said, were able to develop a "toe hold" into profitable enterprises on the land, and through the use of modern machinery and chemicals, to make a go of it.

AT NEW ENGLAND FERTILIZER MEETING—Representatives of the fertilizer industry in the northeastern states, land grant colleges and the National Plant Food Institute were present at the New England Fertilizer Conference held at the Bald Peak Colony Club, Melvin Village, New Hampshire, Sept. 12. A panel discussion on the future of agriculture in New England was handled by the individuals shown in photo at top. Left to right: Louis Webster, director, division of markets, Massachusetts State Department of Agriculture, Boston; A. F. Heald, state administrative officer, Vermont State Agricultural Stabilization and Conservation Office; L. A. Zehner, assistant to the vice president, Federal Reserve Bank of Boston, moderator, and Richard D. Aplin, market administrator, Greater Boston Milk Marketing Area, U.S. Department of Agriculture.

Center photo, left to right: Mr. Webster; W. R. Allstetter, National Plant Food Institute, Washington, D.C.; Mr. Zehner; Walter E. Meeken, Consolidated Rendering Co., Boston; Dr. Russell Coleman, executive vice president, National Plant Food Institute, Washington, D.C.; and Dr. Willard Garman, agronomist, NPFI, Washington.

In the lower photo are representatives of the New Hampshire College of Agriculture, Durham, N.H. Left to right: R. B. Littlefield, L. J. Higgins, H. A. Davis and H. C. Grinnell, dean of the college.

Croplife®

A WEEKLY NEWSPAPER FOR THE FARM CHEMICAL INDUSTRY

The regional circulation of this issue is concentrated in the Western states.

Forest Fertilization Gives Promise of Big Market

A new and potentially great market for the fertilizer industry is outlined in a news story beginning on page 1 of this issue of Croplife. This refers to the practice of forest fertilization which should have a considerable impact on various industries and national resources.

Of course, one of the most important industries to be affected, aside from the forestry business itself, is the fertilizer trade. Presently faced with decreasing sales to the farmer, the plant food manufacturer may see forest application sales numbering in the thousands of tons within the next decade. Intensive investigation and proof of fertilizer's efficacy in the forest are now under way to develop this market potential.

Tests made at Beemerville, N.J., by the Rutgers University forestry department and the Nitrogen Division of Allied Chemical & Dye Corp. indicate that the aerial fertilizer applicator also stands to gain in the development of this idea. Fertilization from the air is economically within reason for these operators, and the prospect of applying plant food on forest areas by air is a new angle. The application of fertilizer materials from the air is not new in itself, but the work of fertilizing large areas of trees does add a new chapter.

Application by this method is considerably less hazardous and has been found to be easier in both crop dusting and crop fertilization. As high payload planes are brought into the picture, it is anticipated that operating costs will be reduced. At any rate, it does appear to be an important new work for the aerial operator.

Other factors that enter into this forest fertilization plan are by-products which include an improvement and conservation of forest soils as tree and ground cover growth increases.

Aerial fertilization might well prove to be a boon and an efficient tool in the hands of the farm woodlot owner, too. When one considers that 34% of the forest land in the U.S. is owned by farmers, this assumes more importance. Volume production of slow-growing woodlots may be increased in three-quarters of the time previously needed, it is indicated.

We will be hearing more about forest fertilization. The fertilizer industry might profitably give it some serious thought.

New Markets Appear When Former One Fades Out

Of considerable significance, we think, was a statement made by one of the speakers at the recent New England fertilizer conference to the effect that the market for fertilizer and other agricultural chemicals can be maintained in spite of urban encroachments on farm land. Sounds interesting.

In at least one specific case, he reported, an enterprising farm supply firm refused to throw in the towel when a vast housing development was built on hundreds of acres of farm land in its immediate area. Despite a bleak prospect for business, with streets and houses covering what was once its customers' well-fertilized crop land, this firm merely changed its emphasis to the needs of back yard gardeners and is now reported to be selling more materials than it did when the entire area was agricultural!

The same idea was forcefully brought out at the National Agricultural Chemicals Assn. meeting at Spring Lake, N.J., when a panel of experts pointed out the vast potential market being developed by the expanded highway program getting under way in the U.S. The fact is that pesticidal chemicals to eliminate weeds and control destructive insects are a real boon to highway landscape engineers.

The increasing numbers of suburbanites with small gardens and an overwhelming pride in maintaining beautiful green lawns, present a real market for the trade in areas where agriculture is apparently being pushed around.

By the same token, the market for supplying fertilizers and pesticides for highway beautification and safety is also on the increase.

Pesticides Cause Crashes?

Can the careless use of phosphate pesticides be back of reported temporary mental lapses on the part of crop dusting pilots, causing them to fly erratically and often to crash?

The Mississippi Aeronautics Commission is inclined to think this is true, particularly after having found samples of the blood of one dead pilot to be "saturated" with chemicals. His plane was said to have gone into "sudden, erratic motions" before it crashed.

As an accident-prevention move, the Mississippi commission has placed special devices in five hospitals conveniently located in cotton areas, so pilots may determine if they have absorbed any chemicals before ill-effects become acute.

As is usually true where accidents with insecticides are involved, some kind of carelessness or thoughtlessness must be at the base of these happenings. Whatever the reason, it underlines once more the fact that these pesticides are of very potent nature and everyone handling them must wear protective clothing, masks and other safety devices as prescribed.

Familiarity breeds contempt, and contempt for modern pesticides is not a particularly healthy attitude to have. Pilots and all others who come in contact with modern insecticides should be urged by dealers and other representatives of the trade, to wear protective devices and thus eliminate the possibility of danger from this source.

Of course it has not been proved unquestionably that it was the influence of pesticides that has caused these unfortunate mishaps, but until all the facts come to light, it is always wise to treat economic poisons with the regard they deserve.

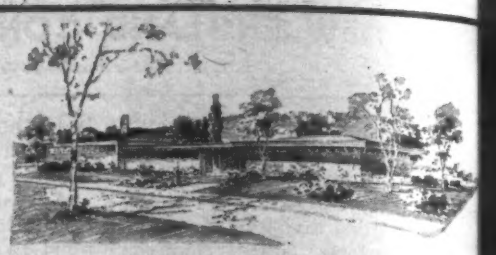
Fertile Romance Blossoms After Special Application

It isn't very often that the fertilizer industry has a hand in promoting romance, but the story is out concerning a modern Romeo who won his fair Julie through the alchemy of plant food on a hillside.

Early last spring, Jack Kenyon, 24-year-old resident of Mineral Point, Wisconsin, drove his jeep into a field near by, spreading fertilizer carefully on the grass. Toward the end of summer, he took his girl friend, Julie, for a ride in an airplane and as they flew over the field he pointed with pride to the hillside where the plant food had been applied a few months previously.

There, spelled out in bright green grass much in contrast to the unfertilized bulk of the area, were the letters, J-U-L-I-E, several hundred feet in height and extended nearly a quarter of a mile. The spectacle, though lacking the glamor of having her name spelled out in bright lights on Broadway, impressed Julie to the extent that the couple later eloped and were married.

While it isn't unusual for fertilizer to make green pastures, it is quite a switch for it to figure in a romantic episode of this type. We can just imagine the wisecracks coming from friends of the couple, referring to their "fertile" marriage!



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CROPLIFE is a controlled circulation journal published weekly. Weekly distribution of each issue is made to the fertilizer manufacturers, pesticide formulators and basic chemical manufacturers. In addition the dealer-distributor-farm adviser segment of the agricultural chemical industry is covered on a regional (crop-area) basis with a mailing schedule which covers consecutively, one each week, four geographic regions (Northeast, South, Midwest and West) of the U.S. with one of four regional dealer issues. To those not eligible for this controlled distribution Croplife subscription rate is $5 for one year ($8 a year outside the U.S.). Single copy price, 25¢.

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MEETING MEMOS

t. 27—New Jersey Fertilizer Conference, Rutgers University College of Agriculture.

t. 8-10 — Carolinas-Virginia Pesticide Formulators Assn., Inc., Annual Meeting, Holly Inn, Pinehurst, N.C., W. R. Peele, 516 S. Salisbury St., Raleigh, Secretary-Treasurer.

t. 9—Western Agricultural Chemicals Assn., Fall Meeting, Villa Hotel, San Mateo, Cal., C. O. Bardard, 2466 Kenwood Ave., San Jose, a, Cal., Executive Secretary.

t. 15 — Fifth Annual Chemical Sales Clinic, the Salesmen's Association of the American Chemical Industry; Hotel Commodore, New York City; chairman, Preston F. Tinsley, Westvaco Chlor-Alkali Division, Food Machinery and Chemical Corp., 161 East 42nd St., New York 17, N.Y.

t. 16-17—National Nitrogen Solutions Assn., Annual Meeting and Trade Show, City Auditorium, Sioux City, Iowa; John White, Auburn, Neb., secretary.

t. 16-18—Fertilizer Industry Round Table, Shoreham Hotel, Washington, D.C. Vincent Sauchelli, Chief Agronomist, Davison Chemical Co., Div. W. R. Grace Co., Baltimore 3, Md., chairman.

t. 16-18—Canadian Agricultural Chemicals Assn., Fourth Annual Meeting and Conference, Sheraton-Brock Hotel, Niagara Falls, Ontario.

t. 18-19—Association of American Fertilizer Control Officials, Shoreham Hotel, Washington, D.C., B. D. Cloaninger, Clemson Agricultural College, Clemson, S.C., secretary-treasurer.

t. 22-23—Fertilizer Section, National Safety Council, La Salle Hotel, Chicago, Ill.; Curtis A. Cox, Virginia-Carolina Chemical Corp., Richmond, Va., chairman.

t. 23-24—Pacific Northwest Garden Supply Trade Show, Shrine Auditorium, Portland, Ore.

t. 25—Middle West Soil Improvement Committee, Annual Meeting, Sherman Hotel, Chicago; Z. H. Beers, Executive Secretary, 228 N. La Salle St., Chicago 1, Ill.

v. 2—Southern Soil Fertility Conference, Atlanta-Biltmore Hotel, Atlanta, Ga.

v. 7-9—Agricultural Ammonia Institute, Annual Convention, Atlanta Biltmore Hotel, Atlanta, Ga., Jack F. Criswell, Claridge Hotel, Memphis, executive vice president.

v. 7-9 — Pacific Northwest Plant Food Assn., Annual Convention, Harrison Hot Springs Hotel, Harrison Hot Springs, British Columbia, Leon S. Jackson, Lewis Bldg., Portland, Ore., secretary.

v. 11-13 — California Fertilizer Assn., 33rd annual convention, Del Coronado Hotel, Coronado, Cal.; Sidney H. Bierly, executive secretary, 475 Huntington Drive, San Marino 9, Cal.

v. 13-15—18th Annual New York State Insecticide and Fungicide Conference and 9th Annual Pesticide Application Equipment Conference, Bibbins Hall, Cornell University, Ithaca, N.Y.

v. 19-20 — Eastern Branch, Entomological Society of America, Hotel Haddon Hall, Atlantic City, N.J., B. F. Driggers, Rutgers University, New Brunswick, N.J., secretary.

v. 19-20—Ohio Pesticide Institute winter meeting, Nell House, Columbus, Ohio.

v. 27-28—Indiana Fertilizer Conference, Memorial Union, Purdue University, Lafayette, Ind.

v. 28—Oklahoma Fertilizer Dealers Conference, Sponsored by the Oklahoma Plant Food Educational Society, Oklahoma A&M College, Stillwater.

Nov. 29—Oklahoma Soils and Crops Conference, Oklahoma A&M College, Stillwater.

Dec. 6-7—Alabama Soil Fertility Society, Whitley Hotel, Montgomery, Ala.

Dec. 10-12—13th Annual North Central Weed Control Conference, Sherman Hotel, Chicago.

Dec. 13-14—Soil Fertility and Plant Nutrition Short Course, University of Missouri, Columbia, Mo.

Dec. 13-14—Cotton Production Conference, The Titwiler, Birmingham, Ala.

Dec. 27-31—Entomological Society of America, Annual Meeting, Hotel New Yorker, New York City.

1957

Jan. 23-25 — Southern Weed Conference, Bon Aire Hotel, Augusta, Ga.; Walter K. Porter, Jr., Agricultural Experiment Station, Louisiana State University, Baton Rouge, secretary.

Jan. 28-29—National Cotton Council of America, Annual Meeting, St. Louis, Mo.

Jan. 31-Feb. 1-2 — Agricultural Aircraft Assn., Annual Convention, Senator Hotel, Sacramento, Cal., Wanda Branstetter, Route 3, Box 1077, Sacramento, Executive Secretary.

June 26-28 — Eighth Annual Fertilizer Conference of the Pacific Northwest, Benson Hotel, Portland, Ore. B. R. Bertramson, Washington State College, Pullman, Wash., chairman.

Cotton Production Conference Set for Birmingham Dec. 13-14

MEMPHIS — The latest experimental results in various phases of cotton production will be highlighted at the second annual Beltwide Cotton Production Conference at the Tutwiler in Birmingham, Dec. 13-14.

The conference is sponsored by the National Cotton Council in cooperation with Cotton Belt land grant colleges, U.S. Department of Agriculture, agricultural chemical industry, farm organizations and others.

The program for the meeting will bring into focus the latest experimental results on insect and disease control, chemical weed control, fertilization, defoliation and other phases of cotton production. The program also will probe into the cost-cutting and quality improvement potential of additional coordinated research on production problems, and then will show how progress in these areas would strengthen cotton's ability to fight for markets.

Among the specific topics on the tentative program are those dealing with production research and cotton's future, effect of environmental factors on cotton fibers, new concepts in cotton fertilization, quality challenges in cotton breeding, nematode menace to cotton, getting a vigorous stand from first planting, a low-cost weed control program, a farmer's experience with modern weed control, new ideas in controlling insects, progress in cooperative pink bollworm research and an extension service program for cotton.

The production conference will be preceded by meetings of a number of technical groups, such as the cotton disease council, the cotton improvement conference, the cotton defoliation group and others.

Oregon State Issues Check List for Boosting Alfalfa Yield

CORVALLIS, ORE. — Well-fertilized, deep soils on Willamette Valley hills can help overcome the region's hay and silage shortage with annual yields of three to four tons of top quality forage per acre, say Oregon State College scientists.

Research at OSC's Red Soils experiment station near Oregon City and scattered farm trials in the valley show that alfalfa is one of the few legumes that give high yields of good forage on the non-irrigated hill soils.

The following check list for good alfalfa stands was prepared by T. L. Jackson, OSC soils scientist; J. T. McDermid, superintendent of the Red Soils station, and H. H. Rampton, OSC-USDA agronomist:

Soil should be at least four feet deep to bedrock or the heavier clay layer and must be well-drained. Alfalfa drowns out in draws and swales and does best on ridges and rolling slopes.

Acid soils are the main reason for alfalfa failures in the area, believes Mr. Jackson. He recommends liming soil now to permit time for neutralizing of soil acids before alfalfa is seeded next spring. Agricultural conservation program payments will cover about half the cost of the first time application.

A soil test is also recommended to determine soil's need for phosphorus, potash and boron. All fertilizers should be applied before seeding, including a yearly spring application of sulfur (gypsum). Mr. Jackson recommends annual fall applications of fertilizer on established stands.

Alfalfa-grass mixtures maintain or improve soil tilth, fix nitrogen, but are heavy users of calcium, phosphorus and potash. Adequate liming and fertilizing are essential, Mr. Jackson says.

South Carolina Tonnage

CLEMSON, S.C. — Fertilizer sales in South Carolina during August totaled 11,911 tons, compared with 11,866 tons in August, 1955, according to the State Department of Fertilizer Inspection and Analysis. Included in the August, 1956 figure were 366 tons of bulk fertilizer.

R. L. Moore, Industry Pioneer, Dies at 70

SACRAMENTO — One of the West's pioneers in the use of agricultural chemicals, R. L. (Spray) Moore, 70, retired owner of the Orchard Supply Co. here, died Sept. 6 in Sutter Hospital.

Mr. Moore was one of the first supply men in California to handle small packaged fungicides and insecticides which since have become basic staples of the business. He also is credited with development of several chemical discoveries in the insecticide field.

A native of Richmond, Va., Mr. Moore attended school in Minneapolis, then came to California in 1906. He is survived by his sons, R. L., Jr., David W., and Richard A. Moore, operators of the Orchard Supply Co.; his widow, Mrs. Jessie L. Moore; a brother, Arthur F. Moore, Los Angeles, and daughters Mrs. Milton L. Schwartz, Mrs. Willard Nielsen and Mrs. Donald Rivett, all of Sacramento.

NEW LABORATORY

SPRINGFIELD, ILL.—A newly equipped feed and fertilizer laboratory of the Illinois Department of Agriculture, located at the state fairgrounds, will be dedicated by Gov. William G. Stratton on Oct. 3. The laboratory is equipped to analyze 10,000 samples a year as compared to 3,000 previously.

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Serving the Agricultural Chemical Industry . . .

Croplife is the weekly *news*paper for all phases of the industry from the manufacturers of basic chemicals down the production and distribution chain through the retail dealers. Croplife reaches *all* the key men in the industry. These groups are reading Croplife:

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- **Formulators of Pesticides, Herbicides and other Farm Chemicals**
- **Retail Dealers selling fertilizer, farm chemicals and other farm supplies; Custom Sprayers, Pest Control Operators, and Nurserymen**
- **Farm Advisor Group—county agents, agriculture department officials, extension and experiment station personnel, soil conservation men, bankers and consultants**

Croplife, with a publishing schedule every 168 hours, is reporting news to the industry while it's still news! A staff of 21 crack newsmen in key U.S. cities and backed by 100 special correspondents provides the stop-press coverage of the industry required by readers who make the command decisions.

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